CONTINUED FROM PART I

ANNUAL GROUND WATER MONITORING REPORT

MUSKOGEE INACTIVE CCR IMPOUNDMENT

ATTACHMENT 2

Field Forms and Analytical Reports

ATTACHMENT 3

Multi-Purpose Well Completion and Plugging Report

Attachment 2

Field Forms and Analytical Reports

Sampling Log

Sample ID	**Date:** 3-14-18	
	Weather Conditions and Temperature: Clear 65°F	
Field Samplers	**Names:** Tad Dow, Micheal Jordan, Dennis Hargrove	
MW01	**Groundwater Level (ft below TOC):** 10.5'	
	Sample Time: 12:06	
	Purge Volume: 5.4 gal	**Field pH:** 7.03 (12:24)
	Comments:	
MW02	**Groundwater Level (ft below TOC)::** 5.5'	
	Sample Time: 12:40	
	Purge Volume: 7.65 gal	**Field pH:** 7.07 (12:46)
	Comments:	
MW03	**Groundwater Level (ft below TOC)::** 9'	
	Sample Time: 12:57	
	Purge Volume: 7.14 gal	**Field pH:** 6.93 (13:05)
	Comments:	
MW04	**Groundwater Level (ft below TOC)::** 11.5'	
	Sample Time: 13:30	
	Purge Volume: 5.61 gal	**Field pH:** 6.79 (13:35)
	Comments:	
MW055	**Groundwater Level (ft below TOC)::** 10.5'	
	Sample Time: 13:47	
	Purge Volume: 5.86 gal	**Field pH:** 6.91 (13:55)
	Comments:	

Additional Notes:
Due to facility sitting in 100 yr floodplain and located inside of river oxbow, the direction of flow of the groundwater is greatly influenced by the river.

Groundwater Velocity **Date: 3/14/2018**

V=KI/n V = Groundwater velocity
K = Horizontal hydraulic conductivity (at site: 21.3767 µm/sec = 0.00007013'/sec = 7.013E-05)
I = Horizontal hydraulic gradient = dh/dl = difference in head/horizontal distance between wells)
n = Effective porosity = 0.29 to 0.41 (Sandy Clay) [Use 0.29]

MW1 - MW2:

dh =	2	MW1 =	509	10.5	498.5
dl =	1053.2	MW2 =	502	5.5	496.5
I = dh/dl =	0.001899				

V = KI/n = 4.592E-07 ft/sec = 0.139972 µm/sec

MW1 - MW3:

dh =	2.5	MW1 =	509	10.5	498.5
dl =	1390	MW3 =	505	9	496
I = dh/dl =	0.0017986				

V = KI/n = 4.349E-07 ft/sec = 0.13257 µm/sec

MW5 - MW4:

dh =	0	MW5 =	506	10.5	495.5
dl =	326.21	MW4 =	507	11.5	495.5
I = dh/dl =	0				

V = KI/n = 0 ft/sec = 0 µm/sec

MW5 - MW3:

dh =	-0.5	MW5 =	506	10.5	495.5
dl =	773.75	MW3 =	505	9	496
I = dh/dl =	-0.0006462				

V = KI/n = -1.563E-07 ft/sec = -0.04763 µm/sec

Attachment 2 : Groundwater Velocity Calculation

Attachment 2 : Groundwater Flow Direction Field Notes

3-14-18

MW1-MW2-MW3: Hydraulic Gradient: 0.00787 ft/ft
DOF: 146.5° clockwise from True North SEbS

MW1-MW3-MW4: HG: ~~0.01775~~ 0.0054 ft/ft
DOF: 245.42° clockwise from True North WSW

MW1-MW2-MW4: HG: 0.00938 ft/ft
DOF: 192.8° clockwise from True North SbW

MW1-MW2-MW5: HG: 0.00923 ft/ft
DOF: 199.48° clockwise from True North SSW

MW1-MW3-MW5: HG: 0.00508 ft/ft
DOF: 274.55° clockwise from True North WbN

MW3-MW4: HG: 0.00582 ft/ft
DOF: 48.25° clockwise from True North NE

MW2-MW3-MW5: HG: 0.00614 ft/ft
DOF: 44.98° clockwise from True North NE

MW3-MW4-MW5: HG: NaN ft/ft
DOF: 0°

MW4-MW3-MW2: HG: 0.00582 ft/ft
DOF: 48.25°

MW5-MW2-MW1: HG: 0.00438 ft/ft
DOF: 187.82° clockwise from True North SbW

MW5-MW4-MW3: HG: 0 ft/ft
DOF: 0°

Accurate Environmental Laboratories

April 05, 2018

Client: OG&E - Muskogee

5501 Three Forks Road

Fort Gibson, OK 74434

Requested By: -

National Environmental Laboratory Accreditation Program
Kansas CERT # E-10219

Sample Project Name:	CCR Groundwater Monitoring
Date Samples Received:	March 15, 2018 Time: 9:54 sample temp upon arrival at lab = 2°C - On Ice
Matrix:	Water
Lab Log Numbers:	**AC15030-01 AC15030-02 AC15030-03 AC15030-04 AC15030-05**
Work Order:	AC15030
Report #	AC15030-0405180841
EPA Lab ID#'s:	**Stillwater OK00092 Tulsa OK00983 OKC OK00129 ICR OK 001**
Oklahoma Certification:	Stillwater WasteWater, DEQ 8316/ Drinking Water, DEQ D9602 Tulsa WasteWater, DEQ 9905 / Drinking Water, DEQ D9901 Oklahoma City WasteWater DEQ 7202 / Drinking Water, DEQ D9937
Kansas Certification:	Stillwater NELAP CERT # E-10219 Oklahoma City NELAP CERT # E-10414
New Hampshire Cert.:	Oklahoma City Drinking Water NH ELAP Lab ID # 2072
Texas Certification:	Stillwater Drinking Water NELAP CERT # T105704533-14-1
Method Reference:	40 CFR 136, 141, and 261 Methods for Chemical Analysis of Water and Wastes EPA-600/4-79-020, March 1983. Test Methods for Evaluating Solid Wastes, SW-846, Final Update III. Standard Methods 1998 (20th Edition), Standard Methods 2005 (21st Edition) and Standard Methods 2011 (22nd Edition) for the Examination of Water and Wastewater.
Analysis Reference:	If qualifiers present in "Prep Info" or "Analysis Info", then analysis performed as follows: @= Tulsa Lab and * = OKC Lab. If no qualifiers present, then analysis performed at Stillwater Lab. Accurate Environmental Laboratories certify that the test results performed at the Stillwater lab meet all requirements of NELAP. Any exceptions to this can be found in the report footer or Quality Control Section of the report. This report is to only be replicated in its entirety. Accurate Enviornmental sampling protocol was followed for any sampling performed by Accurate Field Services.

Sample: *MW-1 MK-126482* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 3/14/18 12:06 **Lab Log#** AC15030-01

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	1.68 mg/L		0.500	03/20/18 07:45 BM	03/20/18 17:38 BM
Fluoride EPA 300.0	Fluoride	0.26 mg/L		0.10	03/20/18 07:45 BM	03/20/18 17:38 BM
Sulfate EPA 300.0	Sulfate	22.0 mg/L		5.00	03/20/18 07:45 BM	03/20/18 17:59 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	424 mg/L		25.0	03/15/18 14:10 @AG	03/16/18 15:45 @AG
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:05 PD
Arsenic (As) EPA 6020A	Arsenic	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:05 PD
Barium (Ba) EPA 6020A	Barium	0.184 mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:05 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	03/20/18 15:30 RW	03/21/18 16:05 PD
Boron (B) EPA 6020A	Boron	0.093 mg/L		0.025	03/20/18 15:30 RW	03/21/18 16:05 PD
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	03/20/18 15:30 RW	03/21/18 16:05 PD
Calcium (Ca) EPA 6010B	Calcium	116 mg/L		0.20	03/20/18 15:30 RW	03/22/18 13:39 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	03/20/18 15:30 RW	03/21/18 16:05 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	03/20/18 15:30 RW	03/21/18 16:05 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:05 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	03/20/18 15:30 PD	03/22/18 15:23 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	03/20/18 14:15 RW	03/21/18 13:52 RW
Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:05 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:05 PD
Thallium (Tl) EPA 6020A	Thallium	0.001 mg/L		0.001	03/20/18 15:30 RW	03/21/18 16:05 PD

Sample: *MW-2 MK-126483* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 3/14/18 12:38 **Lab Log#** AC15030-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	39.2 mg/L		5.00	03/20/18 07:45 BM	03/20/18 18:41 BM
Fluoride EPA 300.0	Fluoride	0.25 mg/L		0.10	03/20/18 07:45 BM	03/20/18 18:20 BM
Sulfate EPA 300.0	Sulfate	99.3 mg/L		5.00	03/20/18 07:45 BM	03/20/18 18:41 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	544 mg/L		25.0	03/15/18 14:10 @AG	03/16/18 15:45 @AG
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:31 PD
Arsenic (As) EPA 6020A	Arsenic	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:31 PD
Barium (Ba) EPA 6020A	Barium	0.235 mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:31 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	03/20/18 15:30 RW	03/21/18 16:31 PD
Boron (B) EPA 6020A	Boron	0.238 mg/L		0.025	03/20/18 15:30 RW	03/21/18 16:31 PD
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	03/20/18 15:30 RW	03/21/18 16:31 PD
Calcium (Ca) EPA 6010B	Calcium	127 mg/L		0.20	03/20/18 15:30 RW	03/22/18 13:42 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	03/20/18 15:30 RW	03/21/18 16:31 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	03/20/18 15:30 RW	03/21/18 16:31 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:31 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	03/20/18 15:30 PD	03/22/18 15:28 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	03/20/18 14:15 RW	03/21/18 13:55 RW

Sample: | **Location Code:** | **PWSID#:**

Collection Type: Grab | Sample Time: 3/14/18 12:38 | Lab Log# AC15030-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:31 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:31 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	03/20/18 15:30 RW	03/21/18 16:31 PD

Sample: *MW-3 MK-126484* | **Location Code:** | **PWSID#:**

Collection Type: Grab | Sample Time: 3/14/18 12:57 | Lab Log# AC15030-03

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	166 mg/L		12.5	03/20/18 07:45 BM	03/20/18 20:48 BM
Fluoride EPA 300.0	Fluoride	0.19 mg/L		0.10	03/20/18 07:45 BM	03/20/18 20:26 BM
Sulfate EPA 300.0	Sulfate	200 mg/L		12.5	03/20/18 07:45 BM	03/20/18 20:48 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	1010 mg/L		25.0	03/15/18 14:10 @AG	03/16/18 15:45 @AG
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:42 PD
Arsenic (As) EPA 6020A	Arsenic	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:42 PD
Barium (Ba) EPA 6020A	Barium	0.311 mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:42 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	03/20/18 15:30 RW	03/21/18 16:42 PD
Boron (B) EPA 6020A	Boron	0.069 mg/L		0.025	03/20/18 15:30 RW	03/21/18 16:42 PD
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	03/20/18 15:30 RW	03/21/18 16:42 PD
Calcium (Ca) EPA 6010B	Calcium	238 mg/L		0.50	03/20/18 15:30 RW	03/22/18 13:44 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	03/20/18 15:30 RW	03/21/18 16:42 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	03/20/18 15:30 RW	03/21/18 16:42 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:42 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	03/20/18 15:30 PD	03/22/18 15:32 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	03/20/18 14:15 RW	03/21/18 13:59 RW
Molybdenum (Mo) EPA 6020A	Molybdenum	0.006 mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:42 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:42 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	03/20/18 15:30 RW	03/21/18 16:42 PD

Sample: *MW-4 MK126485* | **Location Code:** | **PWSID#:**

Collection Type: Grab | Sample Time: 3/14/18 13:30 | Lab Log# AC15030-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	139 mg/L		12.5	03/20/18 07:45 BM	03/20/18 21:30 BM
Fluoride EPA 300.0	Fluoride	0.18 mg/L		0.10	03/20/18 07:45 BM	03/20/18 21:09 BM
Sulfate EPA 300.0	Sulfate	347 mg/L		12.5	03/20/18 07:45 BM	03/20/18 21:30 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	1300 mg/L		25.0	03/15/18 14:10 @AG	03/16/18 15:45 @AG
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:53 PD
Arsenic (As) EPA 6020A	Arsenic	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:53 PD
Barium (Ba) EPA 6020A	Barium	0.244 mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:53 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	03/20/18 15:30 RW	03/21/18 16:53 PD
Boron (B) EPA 6020A	Boron	0.077 mg/L		0.025	03/20/18 15:30 RW	03/21/18 16:53 PD
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	03/20/18 15:30 RW	03/21/18 16:53 PD

Sample: **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 3/14/18 13:30 Lab Log# AC15030-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Calcium (Ca) EPA 6010B	Calcium	331 mg/L		0.50	03/20/18 15:30 RW	03/22/18 13:47 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	03/20/18 15:30 RW	03/21/18 16:53 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	03/20/18 15:30 RW	03/21/18 16:53 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:53 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	03/20/18 15:30 PD	03/22/18 15:36 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	03/20/18 14:15 RW	03/21/18 14:03 RW
Molybdenum (Mo) EPA 6020A	Molybdenum	0.007 mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:53 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 16:53 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	03/20/18 15:30 RW	03/21/18 16:53 PD

Sample: ***MW-5 MK-126486*** **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 3/14/18 13:47 Lab Log# AC15030-05

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	29.9 mg/L		5.00	03/20/18 07:45 BM	03/20/18 22:12 BM
Fluoride EPA 300.0	Fluoride	0.18 mg/L		0.10	03/20/18 07:45 BM	03/20/18 22:31 BM
Sulfate EPA 300.0	Sulfate	159 mg/L		5.00	03/20/18 07:45 BM	03/20/18 22:12 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	826 mg/L		25.0	03/15/18 14:10 @AG	03/16/18 15:45 @AG
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 17:04 PD
Arsenic (As) EPA 6020A	Arsenic	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 17:04 PD
Barium (Ba) EPA 6020A	Barium	0.147 mg/L		0.005	03/20/18 15:30 RW	03/21/18 17:04 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	03/20/18 15:30 RW	03/21/18 17:04 PD
Boron (B) EPA 6020A	Boron	0.274 mg/L		0.025	03/20/18 15:30 RW	03/21/18 17:04 PD
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	03/20/18 15:30 RW	03/21/18 17:04 PD
Calcium (Ca) EPA 6010B	Calcium	202 mg/L		0.50	03/20/18 15:30 RW	03/22/18 13:50 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	03/20/18 15:30 RW	03/21/18 17:04 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	03/20/18 15:30 RW	03/21/18 17:04 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 17:04 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	03/20/18 15:30 PD	03/22/18 15:41 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	03/20/18 14:15 RW	03/21/18 14:08 RW
Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 17:04 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	03/20/18 15:30 RW	03/21/18 17:04 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	03/20/18 15:30 RW	03/21/18 17:04 PD

Notes and Definitions

#58	Analyte recoveries are outside of acceptance limits.
#52	Analyte recoveries are outside of acceptance limits for the matrix spike sample. This failure does not invalidate data reported.
#44	RPD is outside of acceptance limits. This failure does not invalidate data reported.
MCL	Analyte concentration may exceed Maximum Contaminant Limit (MCL) for EPA Primary or Secondary Drinking Water Regulations.
###	Analyte concentration may exceed regulatory limit.
PQL	Practical Quantitation Limit - the method reporting limit (MRL) adjusted for any dilutions or other changes made to the sample to deal with interferences/matrix effects
BPQL	Below Practical Quantitation Limit (if applicable).

The "Prep Date" of the QC analysis coincides with the characters of the appropriate QC Lab ID. (Example: 19 A 02 15 - BLK = 2019, Jan 2, Batch #15 - Blank)

Lab Manager

Quality Control Data

Blank Data

QC Lab #	Test Group	Test	Result		PQL	Flags
18C2002-BLK1	Chloride EPA 300.0	Chloride	BPQL	mg/L	0.500	
18C2002-BLK1	Fluoride EPA 300.0	Fluoride	BPQL	mg/L	0.10	
18C2002-BLK1	Sulfate EPA 300.0	Sulfate	BPQL	mg/L	0.500	
18C1518-BLK1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	BPQL	mg/L	25.0	
18C2025-BLK1	Antimony (Sb) EPA 6020A	Antimony	BPQL	mg/L	0.005	
18C2025-BLK1	Arsenic (As) EPA 6020A	Arsenic	BPQL	mg/L	0.005	
18C2025-BLK1	Barium (Ba) EPA 6020A	Barium	BPQL	mg/L	0.005	
18C2025-BLK1	Beryllium (Be) EPA 6020A	Beryllium	BPQL	mg/L	0.001	
18C2025-BLK1	Boron (B) EPA 6020A	Boron	BPQL	mg/L	0.025	
18C2025-BLK1	Cadmium (Cd) EPA 6020A	Cadmium	BPQL	mg/L	0.001	
18C2029-BLK1	Calcium (Ca) EPA 6010B	Calcium	BPQL	mg/L	0.10	
18C2025-BLK1	Chromium (Cr) EPA 6020A	Chromium	BPQL	mg/L	0.010	
18C2025-BLK1	Cobalt (Co) EPA 6020A	Cobalt	BPQL	mg/L	0.010	
18C2025-BLK1	Lead (Pb) EPA 6020A	Lead	BPQL	mg/L	0.005	
18C2143-BLK1	Lithium (Li) EPA 6020A	Lithium	BPQL	mg/L	0.050	
18C2051-BLK1	Mercury (Hg) EPA 7470A	Mercury	BPQL	ug/L	0.050	
18C2025-BLK1	Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL	mg/L	0.005	
18C2025-BLK1	Selenium (Se) EPA 6020A	Selenium	BPQL	mg/L	0.005	
18C2025-BLK1	Thallium (Tl) EPA 6020A	Thallium	BPQL	mg/L	0.001	

Laboratory Control Sample Data

Lab QC#	Test Group	Test Name	LCS Result	Spike Level	Units	% Rec.	Control Limits	Flags
18C1518-BS1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	952	1000	mg/L	95	80 - 120	
18C2002-BS1	Chloride EPA 300.0	Chloride	3.24	3.000	mg/L	108	90 - 110	
18C2002-BS1	Fluoride EPA 300.0	Fluoride	1.98	2.000	mg/L	99	90 - 110	
18C2002-BS1	Sulfate EPA 300.0	Sulfate	15.8	15.00	mg/L	105	90 - 110	
18C2025-BS1	Antimony (Sb) EPA 6020A	Antimony	0.102	0.1000	mg/L	102	85 - 115	
18C2025-BS1	Arsenic (As) EPA 6020A	Arsenic	0.100	0.1000	mg/L	100	85 - 115	
18C2025-BS1	Barium (Ba) EPA 6020A	Barium	0.101	0.1000	mg/L	101	85 - 115	
18C2025-BS1	Beryllium (Be) EPA 6020A	Beryllium	0.099	0.1000	mg/L	99	85 - 115	
18C2025-BS1	Boron (B) EPA 6020A	Boron	0.100	0.1000	mg/L	100	85 - 115	
18C2025-BS1	Cadmium (Cd) EPA 6020A	Cadmium	0.099	0.1000	mg/L	99	85 - 115	
18C2025-BS1	Chromium (Cr) EPA 6020A	Chromium	0.102	0.1000	mg/L	102	85 - 115	
18C2025-BS1	Cobalt (Co) EPA 6020A	Cobalt	0.103	0.1000	mg/L	103	85 - 115	
18C2025-BS1	Lead (Pb) EPA 6020A	Lead	0.100	0.1000	mg/L	100	85 - 115	
18C2025-BS1	Molybdenum (Mo) EPA 6020A	Molybdenum	0.101	0.1000	mg/L	101	85 - 115	
18C2025-BS1	Selenium (Se) EPA 6020A	Selenium	0.100	0.1000	mg/L	100	85 - 115	
18C2025-BS1	Thallium (Tl) EPA 6020A	Thallium	0.099	0.1000	mg/L	99	85 - 115	
18C2029-BS1	Calcium (Ca) EPA 6010B	Calcium	2.01	2.000	mg/L	100	85 - 115	
18C2051-BS1	Mercury (Hg) EPA 7470A	Mercury	1.5	1.667	ug/L	91	85 - 115	
18C2143-BS1	Lithium (Li) EPA 6020A	Lithium	0.997	1.000	mg/L	100	85 - 115	

Quality Control Data

Matrix Spike Data

QC Lab #	Test Group	Test Name	Source Sample	Sample Result	Units	Spike Result	Spike Level	% Rec.	Acceptance Limits	Flags
18C2025-MS1	Antimony (Sb) EPA 6020A	Antimony	AC15030-01	BPQL	mg/L	1.01	1.000	101	85 - 115	
18C2025-MS1	Arsenic (As) EPA 6020A	Arsenic	AC15030-01	BPQL	mg/L	0.982	1.000	98	85 - 115	
18C2025-MS1	Barium (Ba) EPA 6020A	Barium	AC15030-01	0.184	mg/L	1.19	1.000	100	85 - 115	
18C2025-MS1	Beryllium (Be) EPA 6020A	Beryllium	AC15030-01	BPQL	mg/L	0.991	1.000	99	85 - 115	
18C2025-MS1	Boron (B) EPA 6020A	Boron	AC15030-01	0.093	mg/L	1.11	1.000	102	85 - 115	
18C2025-MS1	Cadmium (Cd) EPA 6020A	Cadmium	AC15030-01	BPQL	mg/L	0.972	1.000	97	85 - 115	
18C2029-MS1	Calcium (Ca) EPA 6010B	Calcium	AC15030-02	127	mg/L	155	20.00	142	85 - 115	#52
18C2025-MS1	Chromium (Cr) EPA 6020A	Chromium	AC15030-01	BPQL	mg/L	0.984	1.000	98	85 - 115	
18C2025-MS1	Cobalt (Co) EPA 6020A	Cobalt	AC15030-01	BPQL	mg/L	0.998	1.000	100	85 - 115	
18C2025-MS1	Lead (Pb) EPA 6020A	Lead	AC15030-01	BPQL	mg/L	1.00	1.000	100	85 - 115	
18C2143-MS1	Lithium (Li) EPA 6020A	Lithium	AC15030-01	BPQL	mg/L	<0.500	10.00		85 - 115	#58
18C2051-MS1	Mercury (Hg) EPA 7470A	Mercury	AC15030-01	BPQL	ug/L	1.4	1.667	81	75 - 125	
18C2025-MS1	Molybdenum (Mo) EPA 6020A	Molybdenum	AC15030-01	BPQL	mg/L	1.00	1.000	100	85 - 115	
18C2025-MS1	Selenium (Se) EPA 6020A	Selenium	AC15030-01	BPQL	mg/L	0.963	1.000	96	85 - 115	
18C2025-MS1	Thallium (Tl) EPA 6020A	Thallium	AC15030-01	BPQL	mg/L	0.974	1.000	97	85 - 115	

Matrix Spike Duplicate Data

QC Lab #	Test Group	Test Name	Sample Result	Spike Result	Spike Level	Units	% Rec.	Rec. Limits	% RPD	RPD Limit	Flags
18C2025-MSD1	Antimony (Sb) EPA 6020A	Antimony	BPQL	0.993	1.000	mg/L	99	85-115	2	20	
18C2025-MSD1	Arsenic (As) EPA 6020A	Arsenic	BPQL	0.990	1.000	mg/L	99	85-115	0.7	20	
18C2025-MSD1	Barium (Ba) EPA 6020A	Barium	0.184	1.19	1.000	mg/L	100	85-115	0.2	20	
18C2025-MSD1	Beryllium (Be) EPA 6020A	Beryllium	BPQL	1.00	1.000	mg/L	100	85-115	1	20	
18C2025-MSD1	Boron (B) EPA 6020A	Boron	0.093	1.10	1.000	mg/L	101	85-115	0.4	20	
18C2025-MSD1	Cadmium (Cd) EPA 6020A	Cadmium	BPQL	0.976	1.000	mg/L	98	85-115	0.4	20	
18C2029-MSD1	Calcium (Ca) EPA 6010B	Calcium	127	155	20.00	mg/L	142	85-115	0	20	#52
18C2025-MSD1	Chromium (Cr) EPA 6020A	Chromium	BPQL	0.987	1.000	mg/L	99	85-115	0.2	20	
18C2025-MSD1	Cobalt (Co) EPA 6020A	Cobalt	BPQL	0.996	1.000	mg/L	100	85-115	0.2	20	
18C2025-MSD1	Lead (Pb) EPA 6020A	Lead	BPQL	1.01	1.000	mg/L	101	85-115	0.7	20	
18C2143-MSD1	Lithium (Li) EPA 6020A	Lithium	BPQL	11.1	10.00	mg/L	111	85-115		20	#44
18C2051-MSD1	Mercury (Hg) EPA 7470A	Mercury	BPQL	1.6	1.667	ug/L	94	75-125	14	20	
18C2025-MSD1	Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL	1.00	1.000	mg/L	100	85-115	0.1	20	
18C2025-MSD1	Selenium (Se) EPA 6020A	Selenium	BPQL	0.946	1.000	mg/L	95	85-115	2	20	
18C2025-MSD1	Thallium (Tl) EPA 6020A	Thallium	BPQL	0.997	1.000	mg/L	100	85-115	2	20	

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

☐ RUSH Due Date

Chain of Custody

Accurate Environmental Labs

Client Name- OG&E Muskogee Power Plant

Project Name- CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix or Source (Refer. below)	Grab (G) or Comp (C)	Client I.D. / Sample Location or DEQ / EPA Location Code	Field Results (pH, Temp, Chlorine, ...) (note analysis & units)	Analysis Requested → # of Container ↓	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS
							Sample Preserv. & Container →	4°C	>4°C
K15030									
-01	3/14/18	1106	GW	G	MW-1 MK- 126484		1	X	X
-02	3/14/18	12:38	GW	G	MW-2 MK- 126485		1	X	X
-03	3/14/18	1157	GW	G	MW-3 MK- 126484		1	X	X
-04	3/14/18	13:30	GW	G	MW-4 MK- 126485		1	X	X
-05	3/14/18	13:47	GW	G	MW-5 MK- 126486		1	X	X

On-Site Info: *Raw Alkalinity (TOC Raw)=* _____ *mg/L* *Turbidity (E.Coli)=* _____ *ntu*

Matrix Codes DW = *Drinkingwater* ; WW = *Wastewater* ; SL = *Sludge* ; O = *Other* _____

E.Coli Source GWUDI-FE= *Groundwater under direct influence of Flowing Stream* GWUDI-RL= *Groundwater under direct influence of Reservoir/Lake*

Field Instrument Calibration -

Meter Type	Standards	Final Read.	Date , Time	Initials

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), TDS (SM 2540 C)

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility. Signature: _____ Date/Time 3/15/18 14:05

Sampled By: Chad Dow Company: Oklahoma Gas & Electric Sample Method:

Relinquished By:	Date/Time	Received By:		Date/Time
Dwi Ste...	3-15-18 / 0954			
☐ Relinquished to Lab By:	Date/Time	Received at Lab By:	Rec'd °C	Date/Time
☐ Rel'd to Log-In Fridge By:		Kathryn Studdard	2.5	3.15.18 0954

Reporting Requirements (Standard 10-15 working days)	Compliance Reporting?	Yes or No (DMR, PWS,)	Oklahoma PWS ID #		RUSH Request (if available)	_____ (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

Mail Invoice To: Email invoice to:

Address: APVendorInvoices@oge.com

Bid # - _____

PO # - _____

Phone #: (553-4079) Fax #: (405) 553-4063

Sampling Log

Sample ID		
	Date: 4-03-18	
	Weather Conditions and Temperature: Cloudy w/intermittent rain	52°F
Field Samplers	Names: Tad Davis, Sarah Childress, Jeremy Blodgett, Michael Jordan	
MW01	Groundwater Level (ft below TOC): 8.75'	TD: 19'
	Sample Time: 10:59	
	Purge Volume: 8.16 gal	Field pH: 7.09 (11:12)
	Comments:	
MW02	Groundwater Level (ft below TOC):: 3'	TD: 18'
	Sample Time: 11:20	
	Purge Volume: 7.65 gal	Field pH: 6.99 (11:33)
	Comments:	
MW03	Groundwater Level (ft below TOC):: 6'	TD: 21.5'
	Sample Time: 11:42	
	Purge Volume: 7.9 gal	Field pH: 6.86 (11:53)
	Comments:	
MW04	Groundwater Level (ft below TOC):: 9'	
	Sample Time: 12:04	
	Purge Volume: 6.12 gal	Field pH: 6.72 (12:14)
	Comments:	
MW055	Groundwater Level (ft below TOC):: 8'	
	Sample Time: 12:24	
	Purge Volume: 6.12 gal	Field pH: 6.82 (12:32)
	Comments:	

Additional Notes:

Groundwater Velocity **Date: 4/03/2018**

V=KI/n V = Groundwater velocity
K = Horizontal hydraulic conductivity (at site: 21.3767 µm/sec = 0.00007013'/sec = 7.013E-05)
I = Horizontal hydraulic gradient = dh/dl = difference in head/horizontal distance between wells)
n = Effective porosity = 0.29 to 0.41 (Sandy Clay) [Use 0.29]

MW1 - MW2:

dh =	12	MW1 =	509	10	499
dl =	1053.2	MW2 =	502	15	487
I = dh/dl =	0.011393847				

V = KI/n = 2.75535E-06 ft/sec = 0.83983 µm/sec

MW1 - MW3:

dh =	9.5	MW1 =	509	10	499
dl =	1390	MW3 =	505	15.5	489.5
I = dh/dl =	0.006834532				

V = KI/n = 1.65278E-06 ft/sec = 0.503767 µm/sec

MW5 - MW4:

dh =	-1	MW5 =	506	12	494
dl =	326.21	MW4 =	507	12	495
I = dh/dl =	-0.00306551				

V = KI/n = -7.41325E-07 ft/sec = -0.22596 µm/sec

MW5 - MW3:

dh =	4.5	MW5 =	506	12	494
dl =	773.75	MW3 =	505	15.5	489.5
I = dh/dl =	0.005815832				

V = KI/n = 1.40643E-06 ft/sec = 0.428679 µm/sec

Attachment 2 : Groundwater Velocity Calculation

Attachment 2 : Groundwater Flow Direction Field Notes

4-3-18

W1-MW2-MW3: HG: 0.00805 ft/ft
DOF: 139.64° clockwise from True North

W1-MW2-MW4: HG: 0.00402 ft/ft
DOF: 173.37° clockwise from True North

W1-MW2-MW5: HG: 0.00369 ft/ft
DOF: 183.47° clockwise from True North

W1-MW3-MW4: HG: 0.00224 ft/ft
DOF: 308.67° clockwise from True North

W1-MW3-MW5: HG: 0.00134 ft/ft
DOF: 302.82° clockwise from True North

W1-MW4-MW5: HG: 0 ft/ft
DOF: 0°

W2-MW3-MW4: HG: 0.00768 ft/ft
DOF: 42.75° clockwise from True North

W2-MW3-MW5: HG: 0.00785 ft/ft
DOF: 41.58° clockwise from True North

W2-MW4-MW5: HG: 0.00958 ft/ft
DOF: 39.41° clockwise from True North

W3-MW4-MW5: HG: NaN ft/ft
DOF: 0°

Accurate Environmental Laboratories

April 13, 2018

Client: OG&E - Muskogee

5501 Three Forks Road

Fort Gibson, OK 74434

Requested By: -

National Environmental Laboratory Accreditation Program
Kansas CERT # E-10219

Sample Project Name:	CCR Groundwater Monitoring
Date Samples Received:	April 04, 2018 Time: 11:45 sample temp upon arrival at lab = 3°C - On Ice
Matrix:	Water
Lab Log Numbers:	AD04095-01 AD04095-02 AD04095-03 AD04095-04 AD04095-05
Work Order:	AD04095
Report #	AD04095-0413180943
EPA Lab ID#'s:	Stillwater OK00092 Tulsa OK00983 OKC OK00129 ICR OK 001
Oklahoma Certification:	Stillwater WasteWater, DEQ 8316/ Drinking Water, DEQ D9602 Tulsa WasteWater, DEQ 9905 / Drinking Water, DEQ D9901 Oklahoma City WasteWater DEQ 7202 / Drinking Water, DEQ D9937
Kansas Certification:	Stillwater NELAP CERT # E-10219 Oklahoma City NELAP CERT # E-10414
New Hampshire Cert.:	Oklahoma City Drinking Water NH ELAP Lab ID # 2072
Texas Certification:	Stillwater Drinking Water NELAP CERT # T105704533-14-1
Method Reference:	40 CFR 136, 141, and 261 Methods for Chemical Analysis of Water and Wastes EPA-600/4-79-020. March 1983. Test Methods for Evaluating Solid Wastes, SW-846, Final Update III. Standard Methods 1998 (20th Edition), Standard Methods 2005 (21st Edition) and Standard Methods 2011 (22nd Edition) for the Examination of Water and Wastewater.
Analysis Reference:	If qualifiers present in "Prep Info" or "Analysis Info", then analysis performed as follows: @= Tulsa Lab and * = OKC Lab. If no qualifiers present, then analysis performed at Stillwater Lab. Accurate Environmental Laboratories certify that the test results performed at the Stillwater lab meet all requirements of NELAP. Any exceptions to this can be found in the report footer or Quality Control Section of the report. This report is to only be replicated in its entirety. Accurate Enviornmental sampling protocol was followed for any sampling performed by Accurate Field Services.

Sample: *MW-1 MK-126503* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 4/3/18 10:59 **Lab Log#** AD04095-01

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	1.21 mg/L		0.500	04/05/18 07:44 BM	04/05/18 22:07 BM
Fluoride EPA 300.0	Fluoride	0.19 mg/L		0.10	04/05/18 07:44 BM	04/05/18 22:07 BM
Sulfate EPA 300.0	Sulfate	19.7 mg/L		0.500	04/05/18 07:44 BM	04/05/18 22:07 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	392 mg/L		25.0	04/09/18 09:03 @MH	04/10/18 15:00 @MH
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	04/05/18 16:00 PD	04/06/18 20:28 PD
Arsenic (As) EPA 6020A	Arsenic	BPQL mg/L		0.005	04/05/18 16:00 PD	04/06/18 20:28 PD
Barium (Ba) EPA 6020A	Barium	0.180 mg/L		0.005	04/05/18 16:00 PD	04/06/18 20:28 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	04/05/18 16:00 PD	04/09/18 16:46 PD
Boron (B) EPA 6020A	Boron	0.074 mg/L		0.025	04/05/18 16:00 PD	04/06/18 20:28 PD
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	04/05/18 16:00 PD	04/06/18 20:28 PD
Calcium (Ca) EPA 6010B	Calcium	112 mg/L		0.50	04/05/18 16:00 PD	04/06/18 14:29 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	04/05/18 16:00 PD	04/06/18 20:28 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	04/05/18 16:00 PD	04/06/18 20:28 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	04/05/18 16:00 PD	04/06/18 20:28 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	04/05/18 16:00 PD	04/10/18 14:44 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	04/10/18 08:30 RW	04/10/18 15:15 RW
Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL mg/L		0.005	04/05/18 16:00 PD	04/06/18 20:28 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	04/05/18 16:00 PD	04/09/18 16:46 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	04/05/18 16:00 PD	04/09/18 16:46 PD

Sample: *MW-2 MK-126504* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 4/3/18 11:20 **Lab Log#** AD04095-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	31.6 mg/L		5.00	04/05/18 07:44 BM	04/05/18 23:14 BM
Fluoride EPA 300.0	Fluoride	0.22 mg/L		0.10	04/05/18 07:44 BM	04/05/18 22:52 BM
Sulfate EPA 300.0	Sulfate	88.7 mg/L		5.00	04/05/18 07:44 BM	04/05/18 23:14 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	522 mg/L		25.0	04/09/18 09:03 @MH	04/10/18 15:00 @MH
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	04/05/18 16:00 PD	04/06/18 20:34 PD
Arsenic (As) EPA 6020A	Arsenic	BPQL mg/L		0.005	04/05/18 16:00 PD	04/06/18 20:34 PD
Barium (Ba) EPA 6020A	Barium	0.231 mg/L		0.005	04/05/18 16:00 PD	04/06/18 20:34 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	04/05/18 16:00 PD	04/09/18 16:51 PD
Boron (B) EPA 6020A	Boron	0.216 mg/L		0.025	04/05/18 16:00 PD	04/06/18 20:34 PD
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	04/05/18 16:00 PD	04/06/18 20:34 PD
Calcium (Ca) EPA 6010B	Calcium	124 mg/L		0.50	04/05/18 16:00 PD	04/06/18 14:32 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	04/05/18 16:00 PD	04/06/18 20:34 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	04/05/18 16:00 PD	04/06/18 20:34 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	04/05/18 16:00 PD	04/06/18 20:34 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	04/05/18 16:00 PD	04/10/18 14:48 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	04/10/18 08:30 RW	04/10/18 15:26 RW

Sample: Location Code: PWSID#:

Collection Type: Grab Sample Time: 4/3/18 11:20 Lab Log# AD04095-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL mg/L		0.005	04/05/18 16:00 PD	04/06/18 20:34 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	04/05/18 16:00 PD	04/09/18 16:51 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	04/05/18 16:00 PD	04/09/18 16:51 PD

Sample: *MW-3 MK-126505* Location Code: PWSID#:

Collection Type: Grab Sample Time: 4/3/18 11:42 Lab Log# AD04095-03

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	135 mg/L		12.5	04/05/18 07:44 BM	04/05/18 23:59 BM
Fluoride EPA 300.0	Fluoride	0.15 mg/L		0.10	04/05/18 07:44 BM	04/05/18 23:37 BM
Sulfate EPA 300.0	Sulfate	185 mg/L		12.5	04/05/18 07:44 BM	04/05/18 23:59 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	976 mg/L		25.0	04/09/18 09:03 @MH	04/10/18 15:00 @MH
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/l		0.005	04/05/18 16:00 PD	04/06/18 20:39 PD
Arsenic (As) EPA 6020A	Arsenic	0.009 mg/L		0.005	04/05/18 16:00 PD	04/09/18 17:02 PD
Barium (Ba) EPA 6020A	Barium	0.346 mg/L		0.005	04/05/18 16:00 PD	04/06/18 20:39 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	04/05/18 16:00 PD	04/09/18 17:02 PD
Boron (B) EPA 6020A	Boron	0.071 mg/L		0.025	04/05/18 16:00 PD	04/06/18 20:39 PD
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/l		0.001	04/05/18 16:00 PD	04/06/18 20:39 PD
Calcium (Ca) EPA 6010B	Calcium	228 mg/l		0.50	04/05/18 16:00 PD	04/06/18 14:35 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/l		0.010	04/05/18 16:00 PD	04/06/18 20:39 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	04/05/18 16:00 PD	04/06/18 20:39 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	04/05/18 16:00 PD	04/06/18 20:39 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	04/05/18 16:00 PD	04/10/18 14:53 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	04/10/18 08:30 RW	04/10/18 15:29 RW
Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL mg/l		0.005	04/05/18 16:00 PD	04/06/18 20:39 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/l		0.005	04/05/18 16:00 PD	04/09/18 17:02 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	04/05/18 16:00 PD	04/09/18 17:02 PD

Sample: *MW-4 MK-126506* Location Code: PWSID#:

Collection Type: Grab Sample Time: 4/3/18 12:04 Lab Log# AD04095-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	130 mg/L		25.0	04/05/18 07:44 BM	04/06/18 00:44 BM
Fluoride EPA 300.0	Fluoride	0.14 mg/L		0.10	04/05/18 07:44 BM	04/06/18 00:22 BM
Sulfate EPA 300.0	Sulfate	335 mg/L		25.0	04/05/18 07:44 BM	04/06/18 00:44 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	1370 mg/L		25.0	04/09/18 09:03 @MH	04/10/18 15:00 @MH
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	04/05/18 16:00 PD	04/06/18 20:45 PD
Arsenic (As) EPA 6020A	Arsenic	0.009 mg/L		0.005	04/05/18 16:00 PD	04/09/18 17:29 PD
Barium (Ba) EPA 6020A	Barium	0.245 mg/L		0.005	04/05/18 16:00 PD	04/06/18 20:45 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	04/05/18 16:00 PD	04/09/18 17:29 PD
Boron (B) EPA 6020A	Boron	0.070 mg/L		0.025	04/05/18 16:00 PD	04/06/18 20:45 PD
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	04/05/18 16:00 PD	04/06/18 20:45 PD

Sample: **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 4/3/18 12:04 Lab Log# AD04095-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Calcium (Ca) EPA 6010B	Calcium	326 mg/L		0.50	04/05/18 16:00 PD	04/06/18 14:57 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	04/05/18 16:00 PD	04/06/18 20:45 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	04/05/18 16:00 PD	04/06/18 20:45 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	04/05/18 16:00 PD	04/06/18 20:45 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	04/05/18 16:00 PD	04/10/18 14:57 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	04/10/18 08:30 RW	04/10/18 15:33 RW
Molybdenum (Mo) EPA 6020A	Molybdenum	0.006 mg/L		0.005	04/05/18 16:00 PD	04/06/18 20:45 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	04/05/18 16:00 PD	04/09/18 17:29 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	04/05/18 16:00 PD	04/09/18 17:29 PD

Sample: *MW-5 MK-126506* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 4/3/18 12:24 Lab Log# AD04095-05

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	23.0 mg/L		12.5	04/05/18 07:44 BM	04/06/18 01:29 BM
Fluoride EPA 300.0	Fluoride	0.14 mg/L		0.10	04/05/18 07:44 BM	04/06/18 01:07 BM
Sulfate EPA 300.0	Sulfate	145 mg/L		12.5	04/05/18 07:44 BM	04/06/18 01:29 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	830 mg/L		25.0	04/09/18 09:03 @MH	04/10/18 15:00 @MH
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	04/05/18 16:00 PD	04/06/18 20:50 PD
Arsenic (As) EPA 6020A	Arsenic	0.006 mg/L		0.005	04/05/18 16:00 PD	04/09/18 17:40 PD
Barium (Ba) EPA 6020A	Barium	0.150 mg/L		0.005	04/05/18 16:00 PD	04/06/18 20:50 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	04/05/18 16:00 PD	04/09/18 17:40 PD
Boron (B) EPA 6020A	Boron	0.240 mg/L		0.025	04/05/18 16:00 PD	04/06/18 20:50 PD
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	04/05/18 16:00 PD	04/06/18 20:50 PD
Calcium (Ca) EPA 6010B	Calcium	212 mg/L		0.50	04/05/18 16:00 PD	04/06/18 14:40 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	04/05/18 16:00 PD	04/06/18 20:50 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	04/05/18 16:00 PD	04/06/18 20:50 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	04/05/18 16:00 PD	04/06/18 20:50 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	04/05/18 16:00 PD	04/10/18 15:01 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	04/10/18 08:30 RW	04/10/18 15:37 RW
Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL mg/L		0.005	04/05/18 16:00 PD	04/06/18 20:50 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	04/05/18 16:00 PD	04/09/18 17:40 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	04/05/18 16:00 PD	04/09/18 17:40 PD

Notes and Definitions

#52	Analyte recoveries are outside of acceptance limits for the matrix spike sample. This failure does not invalidate data reported.
MCL	Analyte concentration may exceed Maximum Contaminant Limit (MCL) for EPA Primary or Secondary Drinking Water Regulations.
###	Analyte concentration may exceed regulatory limit.
PQL	Practical Quantitation Limit - the method reporting limit (MRL) adjusted for any dilutions or other changes made to the sample to deal with interferences/matrix effects
BPQL	Below Practical Quantitation Limit (if applicable).

The "Prep Date" of the QC analysis coincides with the characters of the appropriate QC Lab ID. (Example: 19 A 02 15 - BLK = 2019, Jan 2, Batch #15 - Blank)

Lab Manager

Quality Control Data

Blank Data

QC Lab #	Test Group	Test	Result	PQL	Flags
18D0502-BLK1	Chloride EPA 300.0	Chloride	BPQL mg/L	0.500	
18D0502-BLK1	Fluoride EPA 300.0	Fluoride	BPQL mg/L	0.10	
18D0502-BLK1	Sulfate EPA 300.0	Sulfate	BPQL mg/L	0.500	
18D0922-BLK1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	BPQL mg/L	25.0	
18D0557-BLK1	Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L	0.005	
18D0557-BLK1	Arsenic (As) EPA 6020A	Arsenic	BPQL mg/L	0.005	
18D0557-BLK1	Barium (Ba) EPA 6020A	Barium	BPQL mg/L	0.005	
18D0557-BLK1	Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L	0.001	
18D0557-BLK1	Boron (B) EPA 6020A	Boron	BPQL mg/L	0.025	
18D0557-BLK1	Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L	0.001	
18D0559-BLK1	Calcium (Ca) EPA 6010B	Calcium	BPQL mg/L	0.10	
18D0557-BLK1	Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L	0.010	
18D0557-BLK1	Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L	0.010	
18D0557-BLK1	Lead (Pb) EPA 6020A	Lead	BPQL mg/L	0.005	
18D0558-BLK1	Lithium (Li) EPA 6020A	Lithium	BPQL mg/L	0.050	
18D1024-BLK1	Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L	0.050	
18D0557-BLK1	Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL mg/L	0.005	
18D0557-BLK1	Selenium (Se) EPA 6020A	Selenium	BPQL mg/L	0.005	
18D0557-BLK1	Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L	0.001	

Laboratory Control Sample Data

Lab QC#	Test Group	Test Name	LCS Result	Spike Level	Units	% Rec.	Control Limits	Flags
18D0502-BS1	Chloride EPA 300.0	Chloride	2.80	3.000	mg/L	93	90 - 110	
18D0502-BS1	Fluoride EPA 300.0	Fluoride	1.90	2.000	mg/L	95	90 - 110	
18D0502-BS1	Sulfate EPA 300.0	Sulfate	14.9	15.00	mg/L	99	90 - 110	
18D0922-BS1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	990	1000	mg/L	99	80 - 120	
18D0557-BS1	Antimony (Sb) EPA 6020A	Antimony	0.098	0.1000	mg/L	98	85 - 115	
18D0557-BS1	Arsenic (As) EPA 6020A	Arsenic	0.087	0.1000	mg/L	87	85 - 115	
18D0557-BS1	Barium (Ba) EPA 6020A	Barium	0.101	0.1000	mg/L	101	85 - 115	
18D0557-BS1	Beryllium (Be) EPA 6020A	Beryllium	0.091	0.1000	mg/L	91	85 - 115	
18D0557-BS1	Boron (B) EPA 6020A	Boron	0.095	0.1000	mg/L	95	85 - 115	
18D0557-BS1	Cadmium (Cd) EPA 6020A	Cadmium	0.096	0.1000	mg/L	96	85 - 115	
18D0557-BS1	Chromium (Cr) EPA 6020A	Chromium	0.088	0.1000	mg/L	88	85 - 115	
18D0557-BS1	Cobalt (Co) EPA 6020A	Cobalt	0.095	0.1000	mg/L	95	85 - 115	
18D0557-BS1	Lead (Pb) EPA 6020A	Lead	0.105	0.1000	mg/L	105	85 - 115	
18D0557-BS1	Molybdenum (Mo) EPA 6020A	Molybdenum	0.102	0.1000	mg/L	102	85 - 115	
18D0557-BS1	Selenium (Se) EPA 6020A	Selenium	0.086	0.1000	mg/L	86	85 - 115	
18D0557-BS1	Thallium (Tl) EPA 6020A	Thallium	0.105	0.1000	mg/L	105	85 - 115	
18D0558-BS1	Lithium (Li) EPA 6020A	Lithium	1.01	1.000	mg/L	101	85 - 115	
18D0559-BS1	Calcium (Ca) EPA 6010B	Calcium	1.95	2.000	mg/L	98	85 - 115	
18D1024-BS1	Mercury (Hg) EPA 7470A	Mercury	1.5	1.667	ug/L	90	85 - 115	

Quality Control Data

Matrix Spike Data

QC Lab #	Test Group	Test Name	Source Sample	Sample Result	Units	Spike Result	Spike Level	% Rec.	Acceptance Limits	Flags
18D0557-MS1	Antimony (Sb) EPA 6020A	Antimony	AD04095-01	BPQL	mg/L	0.098	0.1000	98	85 - 115	
18D0557-MS1	Arsenic (As) EPA 6020A	Arsenic	AD04095-01	0.005	mg/L	0.096	0.1000	90	85 - 115	
18D0557-MS1	Barium (Ba) EPA 6020A	Barium	AD04095-01	0.180	mg/L	0.279	0.1000	99	85 - 115	
18D0557-MS1	Beryllium (Be) EPA 6020A	Beryllium	AD04095-01	BPQL	mg/L	0.084	0.1000	84	85 - 115	#52
18D0557-MS1	Boron (B) EPA 6020A	Boron	AD04095-01	0.074	mg/L	0.154	0.1000	80	85 - 115	#52
18D0557-MS1	Cadmium (Cd) EPA 6020A	Cadmium	AD04095-01	BPQL	mg/L	0.092	0.1000	92	85 - 115	
18D0559-MS1	Calcium (Ca) EPA 6010B	Calcium	AD04095-05	212	mg/L	215	2.000	125	85 - 115	#52
18D0557-MS1	Chromium (Cr) EPA 6020A	Chromium	AD04095-01	BPQL	mg/L	0.090	0.1000	90	85 - 115	
18D0557-MS1	Cobalt (Co) EPA 6020A	Cobalt	AD04095-01	BPQL	mg/L	0.090	0.1000	90	85 - 115	
18D0557-MS1	Lead (Pb) EPA 6020A	Lead	AD04095-01	BPQL	mg/L	0.103	0.1000	103	85 - 115	
18D0558-MS1	Lithium (Li) EPA 6020A	Lithium	AD04095-01	BPQL	mg/L	1.12	1.000	112	85 - 115	
18D1024-MS1	Mercury (Hg) EPA 7470A	Mercury	AD04095-01	BPQL	ug/L	1.1	1.667	67	75 - 125	#52
18D0557-MS1	Molybdenum (Mo) EPA 6020A	Molybdenum	AD04095-01	BPQL	mg/L	0.104	0.1000	104	85 - 115	
18D0557-MS1	Selenium (Se) EPA 6020A	Selenium	AD04095-01	BPQL	mg/L	0.083	0.1000	83	85 - 115	#52
18D0557-MS1	Thallium (Tl) EPA 6020A	Thallium	AD04095-01	BPQL	mg/L	0.105	0.1000	105	85 - 115	

Matrix Spike Duplicate Data

QC Lab #	Test Group	Test Name	Sample Result	Spike Result	Spike Level	Units	% Rec.	Rec. Limits	% RPD	RPD Limit	Flags
18D0557-MSD1	Antimony (Sb) EPA 6020A	Antimony	BPQL	0.100	0.1000	mg/L	100	85-115	2	20	
18D0557-MSD1	Arsenic (As) EPA 6020A	Arsenic	0.005	0.098	0.1000	mg/L	93	85-115	3	20	
18D0557-MSD1	Barium (Ba) EPA 6020A	Barium	0.180	0.288	0.1000	mg/L	107	85-115	3	20	
18D0557-MSD1	Beryllium (Be) EPA 6020A	Beryllium	BPQL	0.082	0.1000	mg/L	82	85-115	2	20	#52
18D0557-MSD1	Boron (B) EPA 6020A	Boron	0.074	0.157	0.1000	mg/L	84	85-115	2	20	#52
18D0557-MSD1	Cadmium (Cd) EPA 6020A	Cadmium	BPQL	0.092	0.1000	mg/L	92	85-115	0.04	20	
18D0559-MSD1	Calcium (Ca) EPA 6010B	Calcium	212	207	2.000	mg/L	-275	85-115	4	20	#52
18D0557-MSD1	Chromium (Cr) EPA 6020A	Chromium	BPQL	0.091	0.1000	mg/L	91	85-115	1	20	
18D0557-MSD1	Cobalt (Co) EPA 6020A	Cobalt	BPQL	0.091	0.1000	mg/L	91	85-115	0.3	20	
18D0557-MSD1	Lead (Pb) EPA 6020A	Lead	BPQL	0.103	0.1000	mg/L	103	85-115	0.3	20	
18D0558-MSD1	Lithium (Li) EPA 6020A	Lithium	BPQL	1.09	1.000	mg/L	109	85-115	2	20	
18D1024-MSD1	Mercury (Hg) EPA 7470A	Mercury	BPQL	1.4	1.667	ug/L	82	75-125	21	20	#52
18D0557-MSD1	Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL	0.105	0.1000	mg/L	105	85-115	0.1	20	
18D0557-MSD1	Selenium (Se) EPA 6020A	Selenium	BPQL	0.085	0.1000	mg/L	85	85-115	2	20	
18D0557-MSD1	Thallium (Tl) EPA 6020A	Thallium	BPQL	0.108	0.1000	mg/L	108	85-115	3	20	

Attachment 2 : Analytical Report

*** Complete Entire COC to be in Compliance***

☐ RUSH Due Date

Chain of Custody

Accurate Environmental Labs

Client Name- **OG&E Muskogee Power Plant**

Project Name- **CCR Groundwater Monitoring**

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix or Source (Refer. below)	Grab (G) or Comp (C)	Client I.D. / Sample Location or DEQ / EPA Location Code	Field Results (pH, Temp, Chlorine, ...) (note analysis & units)	Analysis Requested → / # of Container ↓	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals* (see comments)	~~Radium 226 and 228~~ combined	Mercury (EPA 245.1)	Fluoride (EPA 300)
							Sample Preserv. & Container →	Cool <4°C	Cool <4°C	Cool <4°C	Cool <4°C	Cool <4°C	Cool <4°C
1804045 -01	4/3/18	1059	GW	G	MW-1 MK-126503		2 3	X	X	X	X	X	X
-02	4/3/18	1120	GW	G	MW-2 MK-126504		2 3	X	X	X	X	X	X
-03	4/3/18	1142	GW	G	MW-3 MK-126505		2 3	X	X	X	X	X	X
-04	4/3/18	2:04	GW	G	MW-4 MK-126506		2 3	X	X	X	X	X	X
-05	4/3/18	1224	GW	G	MW-5 MK-126507		2 3	X	X	X	X	X	X

On-Site Info: *Raw Alkalinity (TOC Raw)=* _____ *mg/L* *Turbidity (E.Coli)=* _____ *ntu*

Matrix Codes DW = *Drinkingwater ;* WW = *Wastewater ;* SL = *Sludge ;* O = *Other* _____

E.Coli Source GWUDI-FS= *Groundwater under direct influence of Fluvial, Stream* GWUDI-RL= *Groundwater under direct influence of Reservoir/Lake*

Field Instrument Calibration -

Meter Type	Standards	Final Read.	Date , Time	Initials

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300),
*Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

* Sample volume made only for Rad analyses. MW 4-4-18

-- All Glass containers provided by Accurate Labs have Teflon lined lids --
-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --
-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility. Signature: _____ Date/Time 4-3-18 1237

Sampled By: Tad Dowda Company: Oklahoma Gas & Electric Sample Method:

Relinquished By: _____ Date/Time 4-4-18 1145 Received By: on ice Date/Time

☐ Relinquished to Lab By: ☐ Relq'd to Log-In Fridge By: Date/Time Received at Lab By: _____ Rec'd °C 3.7 Date/Time 4-4-18 1145

Reporting Requirements (standard 10-15 working days)	Compliance Reporting?	Yes or No (DMR, PWS,)	Oklahoma PWS ID #	RUSH Request (if available)	_____ (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

Mail Invoice To: **Email invoice to:**

Address: APVendorInvoices@oge.com

Bid # -

PO # - _____

Phone #: (553-4079) Fax #: (405) 553-4063

www.accuratelabs.com (800) 516-5227

505 South Lowry Street, Stillwater, OK 74074 Phone: (405) 372-5300 Fax: (405) 372-5396

6558 E. 40th Street, Tulsa, OK 74074 Phone: (918) 663-5400 Fax: (918) 663-6300

12036 N. Pennsylvania, Oklahoma City, OK 73120 Phone: (405) 751-3132 Fax: (405) 751-3108

Sampling Log

Sample ID	**Date:** 4-27-18
	Weather Conditions and Temperature: Clear 78°
Field Samplers	**Names:** Tad Dow, Jason Childress, Jenny Blodgett, Michael Jordan
	Groundwater Level (ft below TOC): 8'6" TD: 20'5"
MW01	**Sample Time:** 11:10
	Purge Volume: 8.67 gal **Field pH:** 6.99 (11:18)
	Comments:
	Groundwater Level (ft below TOC):: 3'8" TD: 20'1"
MW02	**Sample Time:** 11:30
	Purge Volume: 8.67 gal **Field pH:** 6.89 (11:38)
	Comments:
	Groundwater Level (ft below TOC):: 9'3" TD: 22'8"
MW03	**Sample Time:** 11:55
	Purge Volume: 8.67 gal **Field pH:** 6.84 (12:03)
	Comments:
	Groundwater Level (ft below TOC):: 10' TD: 24'5"
MW04	**Sample Time:** ~~8.67 gal~~ 12:22
	Purge Volume: 8.67 gal **Field pH:** 6.67 (12:30)
	Comments:
	Groundwater Level (ft below TOC):: 9'4" TD: 21'7"
MW05S	**Sample Time:** 12:44
	Purge Volume: 6.12 gal **Field pH:** 6.78 (12:47)
	Comments:

Additional Notes:

Groundwater Velocity **Date: 4/27/2018**

V=KI/n V = Groundwater velocity
K = Horizontal hydraulic conductivity (at site: 21.3767 µm/sec = 0.00007013'/sec = 7.013E-05)
I = Horizontal hydraulic gradient = dh/dl = difference in head/horizontal distance between wells)
n = Effective porosity = 0.29 to 0.41 (Sandy Clay) [Use 0.29]

MW1 - MW2:

dh =	1.17	MW1 =	509	9.5	499.5
dl =	1053.2	MW2 =	502	3.67	498.33
I = dh/dl =	0.0011109				

V = KI/n = 2.68646E-07 ft/sec = 0.081883 µm/sec

MW1 - MW3:

dh =	1.75	MW1 =	509	9.5	499.5
dl =	1390	MW3 =	505	7.25	497.75
I = dh/dl =	0.001258993				

V = KI/n = 3.04459E-07 ft/sec = 0.092799 µm/sec

MW5 - MW4:

dh =	-0.33	MW5 =	506	9.33	496.67
dl =	326.21	MW4 =	507	10	497
I = dh/dl =	-0.001011618				

V = KI/n = -2.44637E-07 ft/sec = -0.07457 µm/sec

MW5 - MW3:

dh =	-1.08	MW5 =	506	9.33	496.67
dl =	773.75	MW3 =	505	7.25	497.75
I = dh/dl =	-0.0013958				

V = KI/n = -3.37543E-07 ft/sec = -0.10288 µm/sec

Attachment 2 : Groundwater Velocity Calculation

Attachment 2 : Groundwater Flow Direction Field Notes

4-27-18

W1-MW2-MW3: HG: 0.00699 ft/ft
DOF: 143.05° clockwise from True North

W1-MW2-MW4: HG: 0.00378 ft/ft
DOF: 177.4° clockwise from True North

W1-MW2-MW5: HG: 0.00346 ft/ft
DOF: 191.26° clockwise from True North

W1-MW3-MW4: HG: 0.00189 ft/ft
DOF: 295.31° clockwise from True North

W1-MW3-MW5: HG: 0.00159 ft/ft
DOF: 290.91° clockwise from True North

W2-MW4-MW5: HG: 0.00137 ft/ft
DOF: 248.78° clockwise from True North

W2-MW3-MW4: HG: 0.00609 ft/ft
DOF: 43.64° clockwise from True North

W2-MW3-MW5: HG: 0.00668 ft/ft
DOF: 39.02° clockwise from True North

W2-MW4-MW5: HG: 0.01246 ft/ft
DOF: 34.65° clockwise from True North

W5-MW4-MW5: HG: 0.0021 ft/ft
DOF: 9.99° clockwise from True North

Accurate Environmental Laboratories

May 09, 2018

Client: OG&E - Muskogee

5501 Three Forks Road

Fort Gibson, OK 74434

Requested By: -

National Environmental Laboratory Accreditation Program Kansas CERT # E-10219

Sample Project Name:	CCR Groundwater Monitoring
Date Samples Received:	May 01, 2018 Time: 11:40 sample temp upon arrival at lab = 2°C - On Ice
Matrix:	Ground Water
Lab Log Numbers:	**AE01046-01 AE01046-02 AE01046-03 AE01046-04 AE01046-05**
Work Order:	AE01046
Report #	AE01046-0509180841
EPA Lab ID#'s:	**Stillwater OK00092 Tulsa OK00983 OKC OK00129 ICR OK 001**
Oklahoma Certification:	Stillwater WasteWater, DEQ 8316/ Drinking Water, DEQ D9602
	Tulsa WasteWater, DEQ 9905 / Drinking Water, DEQ D9901
	Oklahoma City WasteWater DEQ 7202 / Drinking Water, DEQ D9937
Kansas Certification:	Stillwater NELAP CERT # E-10219
	Oklahoma City NELAP CERT # E-10414
New Hampshire Cert.:	Oklahoma City Drinking Water NH ELAP Lab ID # 2072
Texas Certification:	Stillwater Drinking Water NELAP CERT # T105704533-14-1
Method Reference:	40 CFR 136, 141, and 261 Methods for Chemical Analysis of Water and Wastes EPA-600/4-79-020, March 1983. Test Methods for Evaluating Solid Wastes, SW-846, Final Update III. Standard Methods 1998 (20th Edition), Standard Methods 2005 (21st Edition) and Standard Methods 2011 (22nd Edition) for the Examination of Water and Wastewater.
Analysis Reference:	If qualifiers present in "Prep Info" or "Analysis Info", then analysis performed as follows: @= Tulsa Lab and * = OKC Lab. If no qualifiers present, then analysis performed at Stillwater Lab.
	Accurate Environmental Laboratories certify that the test results performed at the Stillwater lab meet all requirements of NELAP. Any exceptions to this can be found in the report footer or Quality Control Section of the report.
	This report is to only be replicated in its entirety.
	Accurate Enviornmental sampling protocol was followed for any sampling performed by Accurate Field Services.

Sample: *MW-1 MK-126527* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 4/27/18 11:10 **Lab Log#** AE01046-01

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	BPQL mg/L		5.00	05/02/18 09:20 BM	05/02/18 18:16 BM
Fluoride EPA 300.0	Fluoride	0.23 mg/L		0.10	05/02/18 09:20 BM	05/02/18 17:32 BM
Sulfate EPA 300.0	Sulfate	16.2 mg/L		5.00	05/02/18 09:20 BM	05/02/18 18:16 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	418 mg/L		25.0	05/04/18 12:30 @AG	05/07/18 12:30 @AG
Boron (B) EPA 6010B	Boron	0.080 mg/L		0.050	05/03/18 16:00 PD	05/04/18 18:56 LF
Calcium (Ca) EPA 6010B	Calcium	99.5 mg/L		0.50	05/03/18 16:00 PD	05/07/18 16:18 LF

Sample: *MW-2 MK-126528* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 4/27/18 11:30 **Lab Log#** AE01046-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	29.0 mg/L		5.00	05/02/18 09:20 BM	05/02/18 19:44 BM
Fluoride EPA 300.0	Fluoride	0.23 mg/L		0.10	05/02/18 09:20 BM	05/02/18 19:22 BM
Sulfate EPA 300.0	Sulfate	84.4 mg/L		5.00	05/02/18 09:20 BM	05/02/18 19:44 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	546 mg/L		25.0	05/04/18 12:30 @AG	05/07/18 12:30 @AG
Boron (B) EPA 6010B	Boron	0.220 mg/L		0.050	05/03/18 16:00 PD	05/04/18 18:59 LF
Calcium (Ca) EPA 6010B	Calcium	110 mg/L		0.50	05/03/18 16:00 PD	05/07/18 16:21 LF

Sample: *MW-3 MK-126529* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 4/27/18 11:55 **Lab Log#** AE01046-03

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	153 mg/L		12.5	05/02/18 09:20 BM	05/02/18 20:07 BM
Fluoride EPA 300.0	Fluoride	0.17 mg/L		0.10	05/02/18 09:20 BM	05/03/18 09:21 BM
Sulfate EPA 300.0	Sulfate	196 mg/L		12.5	05/02/18 09:20 BM	05/02/18 20:07 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	1030 mg/L		25.0	05/04/18 12:30 @AG	05/07/18 12:30 @AG
Boron (B) EPA 6010B	Boron	0.062 mg/L		0.050	05/03/18 16:00 PD	05/04/18 19:02 LF
Calcium (Ca) EPA 6010B	Calcium	218 mg/L		0.50	05/03/18 16:00 PD	05/07/18 16:24 LF

Sample: *MW-4 MK-126530* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 4/27/18 12:22 **Lab Log#** AE01046-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	140 mg/L		25.0	05/02/18 09:20 BM	05/03/18 10:05 BM
Fluoride EPA 300.0	Fluoride	0.15 mg/L		0.10	05/02/18 09:20 BM	05/03/18 09:43 BM
Sulfate EPA 300.0	Sulfate	342 mg/L		25.0	05/02/18 09:20 BM	05/03/18 10:05 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	1370 mg/L		25.0	05/04/18 12:30 @AG	05/07/18 12:30 @AG
Boron (B) EPA 6010B	Boron	0.072 mg/L		0.050	05/03/18 16:00 PD	05/04/18 19:05 LF
Calcium (Ca) EPA 6010B	Calcium	304 mg/L		0.50	05/03/18 16:00 PD	05/07/18 16:27 LF

Sample: *MW-5 MK-126531* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 4/27/18 12:41 **Lab Log#** AE01046-05

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	26.5 mg/L		12.5	05/02/18 09:20 BM	05/03/18 10:48 BM
Fluoride EPA 300.0	Fluoride	0.14 mg/L		0.10	05/02/18 09:20 BM	05/03/18 10:26 BM
Sulfate EPA 300.0	Sulfate	149 mg/L		12.5	05/02/18 09:20 BM	05/03/18 10:48 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	860 mg/L		25.0	05/04/18 12:30 @AG	05/07/18 12:30 @AG
Boron (B) EPA 6010B	Boron	0.268 mg/L		0.050	05/09/18 16:00 PD	05/04/18 19:07 LF
Calcium (Ca) EPA 6010B	Calcium	176 mg/L		0.50	05/03/18 16:00 PD	05/07/18 16:30 LF

Notes and Definitions

#52	Analyte recoveries are outside of acceptance limits for the matrix spike sample. This failure does not invalidate data reported.
MCL	Analyte concentration may exceed Maximum Contaminant Limit (MCL) for EPA Primary or Secondary Drinking Water Regulations.
###	Analyte concentration may exceed regulatory limit.
PQL	Practical Quantitation Limit - the method reporting limit (MRL) adjusted for any dilutions or other changes made to the sample to deal with interferences/matrix effects
BPQL	Below Practical Quantitation Limit (if applicable).

The "Prep Date" of the QC analysis coincides with the characters of the appropriate QC Lab ID. (Example: 19 A 02 15 - BLK = 2019, Jan 2, Batch #15 - Blank)

Lab Manager

Quality Control Data

Blank Data

QC Lab #	Test Group	Test	Result		PQL	Flags
18E0202-BLK1	Chloride EPA 300.0	Chloride	BPQL	mg/L	0.500	
18E0202-BLK1	Fluoride EPA 300.0	Fluoride	BPQL	mg/L	0.10	
18E0202-BLK1	Sulfate EPA 300.0	Sulfate	BPQL	mg/L	0.500	
18E0409-BLK1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	BPQL	mg/L	25.0	
18E0352-BLK1	Boron (B) EPA 6010B	Boron	BPQL	mg/L	0.050	
18E0352-BLK1	Calcium (Ca) EPA 6010B	Calcium	BPQL	mg/L	0.10	

Duplicate Sample Data

QC Lab #	Test Group	Test Name	Source	Dup Result	Samp Result	% RPD	RPD Limit	Flags
18E0202-DUP1	Chloride EPA 300.0	Chloride	AE01046-01	2.08	2.34	12	20	
18E0202-DUP1	Fluoride EPA 300.0	Fluoride	AE01046-01	0.23	0.23	2	20	
18E0202-DUP1	Sulfate EPA 300.0	Sulfate	AE01046-01	16.2	16.2	0.2	20	

Laboratory Control Sample Data

Lab QC#	Test Group	Test Name	LCS Result	Spike Level	Units	% Rec.	Control Limits	Flags
18E0202-BS1	Chloride EPA 300.0	Chloride	2.89	3.000	mg/L	96	90 - 110	
18E0202-BS1	Fluoride EPA 300.0	Fluoride	1.88	2.000	mg/L	94	90 - 110	
18E0202-BS1	Sulfate EPA 300.0	Sulfate	15.0	15.00	mg/L	100	90 - 110	
18E0409-BS1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	994	1000	mg/L	99	80 - 120	
18E0352-BS1	Boron (B) EPA 6010B	Boron	1.92	2.000	mg/L	96	85 - 115	
18E0352-BS1	Calcium (Ca) EPA 6010B	Calcium	2.00	2.000	mg/L	100	85 - 115	

Matrix Spike Data

QC Lab #	Test Group	Test Name	Source Sample	Sample Result	Units	Spike Result	Spike Level	% Rec.	Acceptance Limits	Flags
18E0202-MS1	Chloride EPA 300.0	Chloride	AE01046-01	2.34	mg/L	16.8	16.67	87	80 - 120	
18E0202-MS1	Fluoride EPA 300.0	Fluoride	AE01046-01	0.23	mg/L	15.5	16.67	92	80 - 120	
18E0202-MS1	Sulfate EPA 300.0	Sulfate	AE01046-01	16.2	mg/L	23.5	16.67	44	80 - 120	
18E0352-MS1	Boron (B) EPA 6010B	Boron	AE01046-01	BPQL	mg/L	9.80	10.00	98	85 - 115	
18E0352-MS1	Calcium (Ca) EPA 6010B	Calcium	AE01046-01	99.5	mg/L	124	10.00	245	85 - 115	#52

Matrix Spike Duplicate Data

QC Lab #	Test Group	Test Name	Sample Result	Spike Result	Spike Level	Units	% Rec.	Rec. Limits	% RPD	RPD Limit	Flags
18E0352-MSD1	Boron (B) EPA 6010B	Boron	BPQL	9.65	10.00	mg/L	96	85-115	2	20	
18E0352-MSD1	Calcium (Ca) EPA 6010B	Calcium	99.5	131	10.00	mg/L	315	85-115	5	20	#52

Attachment 2 : Analytical Report

*** Complete Entire COC to be in Compliance***

☐ RUSH Due Date

Chain of Custody

Accurate

Client Name- **OG&E Muskogee Power Plant**

Project Name- **CCR Groundwater Monitoring**

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix or Source (Refer below)	Grab (G) or Comp (C)	Client I.D. / Sample Location or DEQ / EPA Location Code	Field Results (pH, Temp, Chlorine, .) (note analysis & units)			Sample Preserv. & Container →	Analysis Requested →	
						( )	(pH)	(Temp	# of Container ↓	Cool <4°C: Boron, Calcium, Chloride, Fluoride, Sulfate	Cool <4°C: TDS
-01	4/27/18	1110	GW	G	MW-1 MK- 126527		6.99	16.6	2	X	X
-02	4/27/18	1130	GW	G	MW-2 MK- 126528		6.89	16.7	2	X	X
-03	4/27/18	1155	GW	G	MW-3 MK- 126529		6.84	17.2	2	X	X
-04	4/27/18	1222	GW	G	MW-4 MK- 126530		6.67	17.9	2	X	X
-05	4/27/18	241	GW	G	MW-5 MK- 26531		6.78	17.8	2	X	X

On-Site Info *Raw* Alkalinity *(TOC Raw)*= _____ mg/L Turbidity *(E.Coli)*= _____ ntu

Matrix Codes DW = *Drinkingwater* ; WW = *Wastewater* ; SL = *Sludge* ; O = *Other* _____

E.Coli Source GWUDI-FS= *Groundwater under direct influence of Flowing Stream* GWUDI-RL= *Groundwater under direct influence of Reservoir/Lake*

Comments Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300),

Field Instrument Calibration -

Meter Type	Standards	Final Read.	Date , Time	Initials

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operation day discharge for the above facility.

Signature: [signature] Date/Time: 4/27/18

Sampled By: [signature]

Company: **Oklahoma Gas & Electric** Sample Method:

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	5-1-18 1110	[signature]	
☐ Relinquished to Lab By:	Date/Time	Received at Lab By:	Rec'd °C: 3.9 Date/Time: 5.1.18 1450
☐ Rel'd to Log-In Fridge By:		[signature]	

Reporting Requirements (standard 10-15 working days)	Compliance Reporting?	Yes or No (DMR, PWS,)	Oklahoma PWS ID #	RUSH Request (If available)	(Working Days)
			— — — — / — — —		

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

Mail Invoice To: **Email invoice to:**

Address: APVendorInvoices@oge.com

Bid # -

PO # -

Phone #: (553-4079) Fax #: (405) 553-4063

Sampling Log

Sample ID		
	Date: 5-23-18	
	Weather Conditions and Temperature: Clear 81°	
Field Samplers	Names: Jason Childress, Jeremy Blodgett, Michael Jordan	
MW01	Groundwater Level (ft below TOC): 8'8"	TD: 20'3"
	Sample Time: 10:57	
	Purge Volume: 5.61 gal	Field pH: 6.98 (11:03)
	Comments:	
MW02	Groundwater Level (ft below TOC):: 3'2"	TD: 20'1"
	Sample Time: 11:43	
	Purge Volume: 5.61 gal	Field pH: 6.92 (11:51)
	Comments:	
MW03	Groundwater Level (ft below TOC):: 7'	TD: 22'7"
	Sample Time: 12:06	
	Purge Volume: 5.61 gal	Field pH: 6.83 (12:13)
	Comments:	
MW04	Groundwater Level (ft below TOC):: 8'2"	TD: 22'4"
	Sample Time: 12:32	
	Purge Volume: 5.61 gal	Field pH: 6.68 (12:39)
	Comments:	
MW055	Groundwater Level (ft below TOC):: 8'7"	TD: 22'8"
	Sample Time: 12:54	
	Purge Volume: 5.61 gal	Field pH: 6.79 (13:00)
	Comments:	

Additional Notes:

Groundwater Velocity **Date: 5/23/2018**

V=KI/n V = Groundwater velocity
K = Horizontal hydraulic conductivity (at site: 21.3767 µm/sec = 0.00007013'/sec = 7.013E-05)
I = Horizontal hydraulic gradient = dh/dl = difference in head/horizontal distance between wells)
n = Effective porosity = 0.29 to 0.41 (Sandy Clay) [Use 0.29]

MW1 - MW2:

dh =	1.497	MW1 =	509	8.67	500.33
dl =	1053.2	MW2 =	502	3.167	498.833
I = dh/dl =	0.001421382				

V = KI/n = 3.43729E-07 ft/sec = 0.104769 µm/sec

MW1 - MW3:

dh =	2.33	MW1 =	509	8.67	500.33
dl =	1390	MW3 =	505	7	498
I = dh/dl =	0.001676259				

V = KI/n = 4.05366E-07 ft/sec = 0.123555 µm/sec

MW5 - MW4:

dh =	-0.416	MW5 =	506	8.583	497.417
dl =	326.21	MW4 =	507	9.167	497.833
I = dh/dl =	-0.001275252				

V = KI/n = -3.08391E-07 ft/sec = -0.094 µm/sec

MW5 - MW3:

dh =	-0.583	MW5 =	506	8.583	497.417
dl =	773.75	MW3 =	505	7	498
I = dh/dl =	-0.000753473				

V = KI/n = -1.82211E-07 ft/sec = -0.05554 µm/sec

Attachment 2 : Groundwater Velocity Calculation

Attachment 2 : Groundwater Flow Direction Field Notes

5-23-18

W1-MW2-MW3: HG: 0.00688 ft/ft
DOF: 146.78° clockwise from True North

W1-MW2-MW4: HG: 0.00423 ft/ft
DOF: 178.2° clockwise from True North

W1-MW2-MW5: HG: 0.00382 ft/ft
DOF: 189.88° clockwise from True North

W1-MW3-MW4: HG: 0.00129 ft/ft
DOF: 240.69° clockwise from True North

W1-MW3-MW5: HG: 0.0014 ft/ft
DOF: 253.85° clockwise from True North

W1-MW4-MW5: HG: 0.0015 ft/ft
DOF: 279.25° clockwise from True North

W2-MW3-MW4: HG: 0.00464 ft/ft
DOF: 54.24° clockwise from True North

W2-MW3-MW5: HG: 0.00551 ft/ft
DOF: 43.18° clockwise from True North

W2-MW4-MW5 HG: 0.01516 ft/ft
DOF: 34.51° clockwise from True North

W3-MW4-MW5: HG: 0.00292 ft/ft
DOF: 245.73° clockwise from True North

Accurate Environmental Laboratories

June 04, 2018

Client: OG&E - Muskogee

5501 Three Forks Road

Fort Gibson, OK 74434

Requested By: -

National Environmental Laboratory Accreditation Program Kansas CERT # E-10219

Sample Project Name:	CCR Groundwater Monitoring
Date Samples Received:	May 24, 2018 Time: 11:11 sample temp upon arrival at lab = 2°C - On Ice
Matrix:	Water
Lab Log Numbers:	**AE24041-01 AE24041-02 AE24041-03 AE24041-04 AE24041-05 AE24041-06 AE24041-07**
Work Order:	AE24041
Report #	AE24041-0604180922
EPA Lab ID#'s:	**Stillwater OK00092 Tulsa OK00983 OKC OK00129 ICR OK 001**
Oklahoma Certification:	Stillwater WasteWater, DEQ 8316/ Drinking Water, DEQ D9602
	Tulsa WasteWater, DEQ 9905 / Drinking Water, DEQ D9901
	Oklahoma City WasteWater DEQ 7202 / Drinking Water, DEQ D9937
Kansas Certification:	Stillwater NELAP CERT # E-10219
	Oklahoma City NELAP CERT # E-10414
New Hampshire Cert.:	Oklahoma City Drinking Water NH ELAP Lab ID # 2072
Texas Certification:	Stillwater Drinking Water NELAP CERT # T105704533-14-1
Method Reference:	40 CFR 136, 141, and 261 Methods for Chemical Analysis of Water and Wastes EPA-600/4-79-020, March 1983. Test Methods for Evaluating Solid Wastes, SW-846, Final Update III. Standard Methods 1998 (20th Edition), Standard Methods 2005 (21st Edition) and Standard Methods 2011 (22nd Edition) for the Examination of Water and Wastewater.
Analysis Reference:	If qualifiers present in "Prep Info" or "Analysis Info", then analysis performed as follows: @= Tulsa Lab and * = OKC Lab. If no qualifiers present, then analysis performed at Stillwater Lab.
	Accurate Environmental Laboratories certify that the test results performed at the Stillwater lab meet all requirements of NELAP. Any exceptions to this can be found in the report footer or Quality Control Section of the report.
	This report is to only be replicated in its entirety.
	Accurate Enviornmental sampling protocol was followed for any sampling performed by Accurate Field Services.

Sample: *MW-1 MK-126551* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 5/23/18 11:00 **Lab Log#** AE24041-01

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	0.881 mg/L		0.500	05/25/18 12:07 BM	05/26/18 02:56 BM
Fluoride EPA 300.0	Fluoride	0.22 mg/L		0.10	05/25/18 12:07 BM	05/26/18 02:56 BM
Sulfate EPA 300.0	Sulfate	14.9 mg/L		0.500	05/25/18 12:07 BM	05/26/18 02:56 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	386 mg/L		25.0	05/29/18 13:08 @MH	05/31/18 15:00 @MH
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:09 PD
Arsenic (As) EPA 6020A	Arsenic	0.012 mg/L		0.005	05/25/18 16:00 PD	05/30/18 15:07 PD
Barium (Ba) EPA 6020A	Barium	0.182 mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:09 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	05/25/18 16:00 PD	05/29/18 16:09 PD
Boron (B) EPA 6020A	Boron	0.087 mg/L		0.025	05/25/18 16:00 PD	05/29/18 16:09 PD
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	05/25/18 16:00 PD	05/29/18 16:09 PD
Calcium (Ca) EPA 6010B	Calcium	96.0 mg/L		0.10	05/25/18 16:00 PD	05/29/18 13:18 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	05/25/18 16:00 PD	05/29/18 16:09 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	05/25/18 16:00 PD	05/29/18 16:09 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:09 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	05/25/18 16:00 PD	05/31/18 10:40 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	05/31/18 08:20 RW	05/31/18 14:07 RW
Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:09 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:09 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	05/25/18 16:00 PD	05/29/18 16:09 PD

Sample: *MW-2 MK-126552* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 5/23/18 11:43 **Lab Log#** AE24041-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	34.1 mg/L		5.00	05/25/18 12:07 BM	05/26/18 04:41 BM
Fluoride EPA 300.0	Fluoride	0.24 mg/L		0.10	05/25/18 12:07 BM	05/26/18 04:20 BM
Sulfate EPA 300.0	Sulfate	83.4 mg/L		5.00	05/25/18 12:07 BM	05/26/18 04:41 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	408 mg/L		25.0	05/29/18 13:08 @MH	05/31/18 15:00 @MH
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:31 PD
Arsenic (As) EPA 6020A	Arsenic	0.013 mg/L		0.005	05/25/18 16:00 PD	05/30/18 15:13 PD
Barium (Ba) EPA 6020A	Barium	0.245 mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:31 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	05/25/18 16:00 PD	05/29/18 16:31 PD
Boron (B) EPA 6020A	Boron	0.252 mg/L		0.025	05/25/18 16:00 PD	05/29/18 16:31 PD
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	05/25/18 16:00 PD	05/29/18 16:31 PD
Calcium (Ca) EPA 6010B	Calcium	106 mg/L		0.50	05/25/18 16:00 PD	05/29/18 14:09 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	05/25/18 16:00 PD	05/29/18 16:31 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	05/25/18 16:00 PD	05/29/18 16:31 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:31 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	05/25/18 16:00 PD	05/31/18 10:44 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	05/31/18 08:20 RW	05/31/18 14:10 RW

Sample: | **Location Code:** | **PWSID#:**

Collection Type: Grab | Sample Time: 5/23/18 11:43 | Lab Log# AE24041-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:31 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:31 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	05/25/18 16:00 PD	05/29/18 16:31 PD

Sample: *MW-3 MK-126553* | **Location Code:** | **PWSID#:**

Collection Type: Grab | Sample Time: 5/23/18 12:08 | Lab Log# AE24041-03

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	140 mg/L		12.5	05/25/18 12:07 BM	05/26/18 05:23 BM
Fluoride EPA 300.0	Fluoride	0.17 mg/L		0.10	05/25/18 12:07 BM	05/26/18 05:02 BM
Sulfate EPA 300.0	Sulfate	184 mg/L		12.5	05/25/18 12:07 BM	05/26/18 05:23 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	970 mg/L		25.0	05/29/18 13:08 @MH	05/31/18 15:00 @MH
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:36 PD
Arsenic (As) EPA 6020A	Arsenic	0.017 mg/L		0.005	05/25/18 16:00 PD	05/30/18 15:18 PD
Barium (Ba) EPA 6020A	Barium	0.355 mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:36 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	05/25/18 16:00 PD	05/29/18 16:36 PD
Boron (B) EPA 6020A	Boron	0.080 mg/L		0.025	05/25/18 16:00 PD	05/29/18 16:36 PD
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	05/25/18 16:00 PD	05/29/18 16:36 PD
Calcium (Ca) EPA 6010B	Calcium	198 mg/L		0.50	05/25/18 16:00 PD	05/29/18 14:11 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	05/25/18 16:00 PD	05/29/18 16:36 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	05/25/18 16:00 PD	05/29/18 16:36 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:36 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	05/25/18 16:00 PD	05/31/18 10:49 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	05/31/18 08:20 RW	05/31/18 14:13 RW
Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:36 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:36 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	05/25/18 16:00 PD	05/29/18 16:36 PD

Sample: *MW-4 MK-126554* | **Location Code:** | **PWSID#:**

Collection Type: Grab | Sample Time: 5/23/18 12:32 | Lab Log# AE24041-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	139 mg/L		25.0	05/25/18 12:07 BM	05/26/18 06:05 BM
Fluoride EPA 300.0	Fluoride	0.16 mg/L		0.10	05/25/18 12:07 BM	05/26/18 05:44 BM
Sulfate EPA 300.0	Sulfate	341 mg/L		25.0	05/25/18 12:07 BM	05/26/18 06:05 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	1320 mg/L		25.0	05/29/18 13:08 @MH	05/31/18 15:00 @MH
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:42 PD
Arsenic (As) EPA 6020A	Arsenic	0.022 mg/L		0.005	05/25/18 16:00 PD	05/30/18 15:24 PD
Barium (Ba) EPA 6020A	Barium	0.274 mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:42 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	05/25/18 16:00 PD	05/29/18 16:42 PD
Boron (B) EPA 6020A	Boron	0.085 mg/L		0.025	05/25/18 16:00 PD	05/29/18 16:42 PD
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	05/25/18 16:00 PD	05/29/18 16:42 PD

Sample: Location Code: PWSID#:

Collection Type: Grab Sample Time: 5/23/18 12:32 Lab Log# AE24041-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Calcium (Ca) EPA 6010B	Calcium	292 mg/L		0.50	05/25/18 16:00 PD	05/29/18 14:14 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	05/25/18 16:00 PD	05/29/18 16:42 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	05/25/18 16:00 PD	05/29/18 16:42 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:42 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	05/25/18 16:00 PD	05/31/18 10:53 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	05/31/18 08:20 RW	05/31/18 14:16 RW
Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:42 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:42 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	05/25/18 16:00 PD	05/29/18 16:42 PD

Sample: *MW-5 MK-126555* Location Code: PWSID#:

Collection Type: Grab Sample Time: 5/23/18 12:57 Lab Log# AE24041-05

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	25.0 mg/L		12.5	05/25/18 12:07 BM	05/26/18 06:47 BM
Fluoride EPA 300.0	Fluoride	0.15 mg/L		0.10	05/25/18 12:07 BM	05/26/18 06:26 BM
Sulfate EPA 300.0	Sulfate	144 mg/L		12.5	05/25/18 12:07 BM	05/26/18 06:47 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	824 mg/L		25.0	05/29/18 13:08 @MH	05/31/18 15:00 @MH
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:47 PD
Arsenic (As) EPA 6020A	Arsenic	0.016 mg/L		0.005	05/25/18 16:00 PD	05/30/18 15:29 PD
Barium (Ba) EPA 6020A	Barium	0.160 mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:47 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	05/25/18 16:00 PD	05/29/18 16:47 PD
Boron (B) EPA 6020A	Boron	0.283 mg/L		0.025	05/25/18 16:00 PD	05/29/18 16:47 PD
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	05/25/18 16:00 PD	05/29/18 16:47 PD
Calcium (Ca) EPA 6010B	Calcium	182 mg/L		0.50	05/25/18 16:00 PD	05/29/18 14:17 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	05/25/18 16:00 PD	05/29/18 16:47 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	05/25/18 16:00 PD	05/29/18 16:47 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:47 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	05/25/18 16:00 PD	05/31/18 10:57 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	05/31/18 08:20 RW	05/31/18 14:19 RW
Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:47 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:47 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	05/25/18 16:00 PD	05/29/18 16:47 PD

Sample: *MW-1 Dup MK-126556* Location Code: PWSID#:

Collection Type: Grab Sample Time: 5/23/18 11:00 Lab Log# AE24041-06

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	0.949 mg/L		0.500	05/25/18 12:07 BM	05/26/18 07:08 BM
Fluoride EPA 300.0	Fluoride	0.23 mg/L		0.10	05/25/18 12:07 BM	05/26/18 07:08 BM
Sulfate EPA 300.0	Sulfate	16.0 mg/L		0.500	05/25/18 12:07 BM	05/26/18 07:08 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	418 mg/L		25.0	05/29/18 13:08 @MH	05/31/18 15:00 @MH

Sample: **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 5/23/18 11:00 **Lab Log#** AE24041-06

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:53 PD
Arsenic (As) EPA 6020A	Arsenic	0.014 mg/L		0.005	05/25/18 16:00 PD	05/30/18 15:35 PD
Barium (Ba) EPA 6020A	Barium	0.195 mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:53 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	05/25/18 16:00 PD	05/29/18 16:53 PD
Boron (B) EPA 6020A	Boron	0.092 mg/L		0.025	05/25/18 16:00 PD	05/29/18 16:53 PD
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	05/25/18 16:00 PD	05/29/18 16:53 PD
Calcium (Ca) EPA 6010B	Calcium	100 mg/L		0.50	05/25/18 16:00 PD	05/29/18 14:20 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	05/25/18 16:00 PD	05/29/18 16:53 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	05/25/18 16:00 PD	05/29/18 16:53 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:53 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	05/25/18 16:00 PD	05/31/18 11:19 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	05/31/18 08:20 RW	05/31/18 14:22 RW
Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:53 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:53 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	05/25/18 16:00 PD	05/29/18 16:53 PD

Sample: ***Blank Water MK-126557*** **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 5/23/18 10:37 **Lab Log#** AE24041-07

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	20.6 mg/L		2.50	05/25/18 12:07 BM	05/26/18 09:15 BM
Fluoride EPA 300.0	Fluoride	0.77 mg/L		0.10	05/25/18 12:07 BM	05/26/18 08:54 BM
Sulfate EPA 300.0	Sulfate	19.5 mg/L		2.50	05/25/18 12:07 BM	05/26/18 09:15 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	152 mg/L		25.0	05/29/18 13:08 @MH	05/31/18 15:00 @MH
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:58 PD
Arsenic (As) EPA 6020A	Arsenic	0.012 mg/L		0.005	05/25/18 16:00 PD	05/30/18 15:40 PD
Barium (Ba) EPA 6020A	Barium	0.058 mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:58 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	05/25/18 16:00 PD	05/29/18 16:58 PD
Boron (B) EPA 6020A	Boron	BPQL mg/L		0.025	05/25/18 16:00 PD	05/29/18 16:58 PD
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	05/25/18 16:00 PD	05/29/18 16:58 PD
Calcium (Ca) EPA 6010B	Calcium	32.3 mg/L		0.10	05/25/18 16:00 PD	05/29/18 13:44 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	05/25/18 16:00 PD	05/29/18 16:58 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	05/25/18 16:00 PD	05/29/18 16:58 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:58 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	05/25/18 16:00 PD	05/31/18 11:23 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	05/31/18 08:20 RW	05/31/18 14:25 RW
Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:58 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	05/25/18 16:00 PD	05/29/18 16:58 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	05/25/18 16:00 PD	05/29/18 16:58 PD

Notes and Definitions

#52	Analyte recoveries are outside of acceptance limits for the matrix spike sample. This failure does not invalidate data reported.
#44	RPD is outside of acceptance limits. This failure does not invalidate data reported.
MCL	Analyte concentration may exceed Maximum Contaminant Limit (MCL) for EPA Primary or Secondary Drinking Water Regulations.
###	Analyte concentration may exceed regulatory limit.
PQL	Practical Quantitation Limit - the method reporting limit (MRL) adjusted for any dilutions or other changes made to the sample to deal with interferences/matrix effects
BPQL	Below Practical Quantitation Limit (if applicable).

The "Prep Date" of the QC analysis coincides with the characters of the appropriate QC Lab ID. (Example: 19 A 02 15 - BLK = 2019, Jan 2, Batch #15 - Blank)

Lab Manager

Quality Control Data

Blank Data

QC Lab #	Test Group	Test	Result	PQL	Flags
18E2542-BLK1	Chloride EPA 300.0	Chloride	BPQL mg/L	0.500	
18E2542-BLK1	Fluoride EPA 300.0	Fluoride	BPQL mg/L	0.10	
18E2542-BLK1	Sulfate EPA 300.0	Sulfate	BPQL mg/L	0.500	
18E2517-BLK1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	BPQL mg/L	25.0	
18E2551-BLK1	Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L	0.005	
18E2551-BLK1	Arsenic (As) EPA 6020A	Arsenic	BPQL mg/L	0.005	
18E2551-BLK1	Barium (Ba) EPA 6020A	Barium	BPQL mg/L	0.005	
18E2551-BLK1	Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L	0.001	
18E2551-BLK1	Boron (B) EPA 6020A	Boron	BPQL mg/L	0.025	
18E2551-BLK1	Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L	0.001	
18E2553-BLK1	Calcium (Ca) EPA 6010B	Calcium	BPQL mg/L	0.10	
18E2551-BLK1	Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L	0.010	
18E2551-BLK1	Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L	0.010	
18E2551-BLK1	Lead (Pb) EPA 6020A	Lead	BPQL mg/L	0.005	
18E2552-BLK1	Lithium (Li) EPA 6020A	Lithium	BPQL mg/L	0.050	
18E3112-BLK1	Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L	0.050	
18E2551-BLK1	Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL mg/L	0.005	
18E2551-BLK1	Selenium (Se) EPA 6020A	Selenium	BPQL mg/L	0.005	
18E2551-BLK1	Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L	0.001	

Duplicate Sample Data

QC Lab #	Test Group	Test Name	Source	Dup Result	Samp Result	% RPD	RPD Limit	Flags
18E2517-DUP1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	AE24041-07	158	152	4	10	

Quality Control Data

Laboratory Control Sample Data

Lab QC#	Test Group	Test Name	LCS Result	Spike Level	Units	% Rec.	Control Limits	Flags
18E2517-BS1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	808	1000	mg/L	81	80 - 120	
18E2542-BS1	Chloride EPA 300.0	Chloride	2.90	3.000	mg/L	97	90 - 110	
18E2542-BS1	Fluoride EPA 300.0	Fluoride	1.93	2.000	mg/L	97	90 - 110	
18E2542-BS1	Sulfate EPA 300.0	Sulfate	15.1	15.00	mg/L	101	90 - 110	
18E2551-BS1	Antimony (Sb) EPA 6020A	Antimony	0.106	0.1000	mg/L	106	85 - 115	
18E2551-BS1	Arsenic (As) EPA 6020A	Arsenic	0.115	0.1000	mg/L	115	85 - 115	
18E2551-BS1	Barium (Ba) EPA 6020A	Barium	0.105	0.1000	mg/L	105	85 - 115	
18E2551-BS1	Beryllium (Be) EPA 6020A	Beryllium	0.109	0.1000	mg/L	109	85 - 115	
18E2551-BS1	Boron (B) EPA 6020A	Boron	0.113	0.1000	mg/L	113	85 - 115	
18E2551-BS1	Cadmium (Cd) EPA 6020A	Cadmium	0.103	0.1000	mg/L	103	85 - 115	
18E2551-BS1	Chromium (Cr) EPA 6020A	Chromium	0.106	0.1000	mg/L	106	85 - 115	
18E2551-BS1	Cobalt (Co) EPA 6020A	Cobalt	0.108	0.1000	mg/L	108	85 - 115	
18E2551-BS1	Lead (Pb) EPA 6020A	Lead	0.112	0.1000	mg/L	112	85 - 115	
18E2551-BS1	Molybdenum (Mo) EPA 6020A	Molybdenum	0.106	0.1000	mg/L	106	85 - 115	
18E2551-BS1	Selenium (Se) EPA 6020A	Selenium	0.099	0.1000	mg/L	99	85 - 115	
18E2551-BS1	Thallium (Tl) EPA 6020A	Thallium	0.106	0.1000	mg/L	106	85 - 115	
18E2552-BS1	Lithium (Li) EPA 6020A	Lithium	0.962	1.000	mg/L	96	85 - 115	
18E2553-BS1	Calcium (Ca) EPA 6010B	Calcium	1.82	2.000	mg/L	91	85 - 115	
18E3112-BS1	Mercury (Hg) EPA 7470A	Mercury	1.7	1.667	ug/L	104	85 - 115	

Matrix Spike Data

QC Lab #	Test Group	Test Name	Source Sample	Sample Result	Units	Spike Result	Spike Level	% Rec.	Acceptance Limits	Flags
18E2551-MS1	Antimony (Sb) EPA 6020A	Antimony	AE24041-01	BPQL	mg/L	0.115	0.1000	115	85 - 115	
18E2551-MS1	Arsenic (As) EPA 6020A	Arsenic	AE24041-01	0.012	mg/L	0.111	0.1000	99	85 - 115	
18E2551-MS1	Barium (Ba) EPA 6020A	Barium	AE24041-01	0.182	mg/L	0.296	0.1000	114	85 - 115	
18E2551-MS1	Beryllium (Be) EPA 6020A	Beryllium	AE24041-01	BPQL	mg/L	0.106	0.1000	106	85 - 115	
18E2551-MS1	Boron (B) EPA 6020A	Boron	AE24041-01	0.087	mg/L	0.192	0.1000	105	85 - 115	
18E2551-MS1	Cadmium (Cd) EPA 6020A	Cadmium	AE24041-01	BPQL	mg/L	0.109	0.1000	109	85 - 115	
18E2553-MS1	Calcium (Ca) EPA 6010B	Calcium	AE24041-02	106	mg/L	117	2.000	550	85 - 115	#52
18E2551-MS1	Chromium (Cr) EPA 6020A	Chromium	AE24041-01	BPQL	mg/L	0.105	0.1000	105	85 - 115	
18E2551-MS1	Cobalt (Co) EPA 6020A	Cobalt	AE24041-01	BPQL	mg/L	0.103	0.1000	103	85 - 115	
18E2551-MS1	Lead (Pb) EPA 6020A	Lead	AE24041-01	BPQL	mg/L	0.114	0.1000	114	85 - 115	
18E2552-MS1	Lithium (Li) EPA 6020A	Lithium	AE24041-01	BPQL	mg/L	1.06	1.000	106	85 - 115	
18E3112-MS1	Mercury (Hg) EPA 7470A	Mercury	AE24041-01	BPQL	ug/L	1.2	1.667	70	75 - 125	#52
18E2551-MS1	Molybdenum (Mo) EPA 6020A	Molybdenum	AE24041-01	BPQL	mg/L	0.111	0.1000	111	85 - 115	
18E2551-MS1	Selenium (Se) EPA 6020A	Selenium	AE24041-01	BPQL	mg/L	0.100	0.1000	100	85 - 115	
18E2551-MS1	Thallium (Tl) EPA 6020A	Thallium	AE24041-01	BPQL	mg/L	0.112	0.1000	112	85 - 115	

Quality Control Data

Matrix Spike Duplicate Data

QC Lab #	Test Group	Test Name	Sample Result	Spike Result	Spike Level	Units	% Rec.	Rec. Limits	% RPD	RPD Limit	Flags
18E2551-MSD1	Antimony (Sb) EPA 6020A	Antimony	BPQL	0.118	0.1000	mg/L	118	85-115	3	20	#52
18E2551-MSD1	Arsenic (As) EPA 6020A	Arsenic	0.012	0.108	0.1000	mg/L	96	85-115	2	20	
18E2551-MSD1	Barium (Ba) EPA 6020A	Barium	0.182	0.300	0.1000	mg/L	118	85-115	1	20	#52
18E2551-MSD1	Beryllium (Be) EPA 6020A	Beryllium	BPQL	0.106	0.1000	mg/L	106	85-115	0.2	20	
18E2551-MSD1	Boron (B) EPA 6020A	Boron	0.087	0.192	0.1000	mg/L	105	85-115	0.01	20	
18E2551-MSD1	Cadmium (Cd) EPA 6020A	Cadmium	BPQL	0.112	0.1000	mg/L	112	85-115	3	20	
18E2553-MSD1	Calcium (Ca) EPA 6010B	Calcium	106	112	2.000	mg/L	300	85-115	4	20	#52
18E2551-MSD1	Chromium (Cr) EPA 6020A	Chromium	BPQL	0.103	0.1000	mg/L	103	85-115	2	20	
18E2551-MSD1	Cobalt (Co) EPA 6020A	Cobalt	BPQL	0.104	0.1000	mg/L	104	85-115	1	20	
18E2551-MSD1	Lead (Pb) EPA 6020A	Lead	BPQL	0.115	0.1000	mg/L	115	85-115	0.5	20	
18E2552-MSD1	Lithium (Li) EPA 6020A	Lithium	BPQL	0.999	1.000	mg/L	100	85-115	6	20	
18E3112-MSD1	Mercury (Hg) EPA 7470A	Mercury	BPQL	0.20	1.667	ug/L	12	75-125	143	20	#44, #52
18E2551-MSD1	Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL	0.111	0.1000	mg/L	111	85-115	0.3	20	
18E2551-MSD1	Selenium (Se) EPA 6020A	Selenium	BPQL	0.097	0.1000	mg/L	97	85-115	3	20	
18E2551-MSD1	Thallium (Tl) EPA 6020A	Thallium	BPQL	0.112	0.1000	mg/L	112	85-115	0.4	20	

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

☐ RUSH Due Date

Chain of Custody

Accurate Environmental Labs

Client Name: OG&E Muskogee Power Plant

Project Name: CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix (GW, SW, WW, SL, O)	Grab (G) or Comp (C)	Client I.D. / Sample Location or DEQ / EPA Location Code		Field Results (pH, Temp, Chlorine, ...) (note analysis & units)			Sample Preserv. & Container #	Analysis Requested # of Container	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals* (see comments)	Radium 226 and 228 combined	Mercury (EPA 245.1)	Fluoride (EPA 300)
										Cool <4°C		Cool <4°C	Cool <4°C	Cool <4°C HNO3	Cool <4°C	Cool <4°C	Cool <4°C
1	5/23/18	1100	GW	G	MW-1	MK-126551				3 2		X	X	X	X	X	X
2	5/23/18	1143	GW	G	MW-2	MK-126552				3 2		X	X	X	X	X	X
3	5/23/18	1208	GW	G	MW-3	MK-126553				3 2		X	X	X	X	X	X
4	5/23/18	1232	GW	G	MW-4	MK-126554				3 2		X	X	X	X	X	X
5	5/23/18	1257	GW	G	MW-5	MK-126555				3 2		X	X	X	X	X	X

On Site Info: Raw Alkalinity (TOC Run)= _____ mg/L Turbidity (E.Coli)= _____ ntu

Field Instrument Calibration

Meter Type	Standards	Final Read	Date	Time	Initials

Matrix Codes: DW = Drinkingwater ; WW = Wastewater ; SL = Sludge ; O = Other _____

Call Source: GWUDI-FS = Groundwater under direct influence of Flowing Stream GWUDI-RL = Groundwater under direct influence of Reservoir/Lake

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility. Signature: Michael Jordan Date/Time: 5/23/18 5:

Sampled By: Michael Jordan Company: Oklahoma Gas & Electric Sample Method: Grab

Relinquished By:	Date/Time	Received By:	Date/Time
Michael Jordan	5/23/18 5:05		5-23-18 / 1505
☐ Relinquished to Lab By: ☐ Relq'd to Lab Fridge By:	Date/Time	Received at Lab By:	Temp °C / Date/Time
	5-24-18 / 1111		1.2 / 5-24-18 1111

Reporting Requirements (Standard TAT): Compliance Reporting? Yes or No (DMR, PWS,) Oklahoma PWS ID #: _____ RUSH Request (if available) _____ (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

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Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

☐ RUSH Due Date

Chain of Custody

Accurate Environmental Labs

Client Name: OG&E Muskogee Power Plant

Project Name: CCR Groundwater Monitorin

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix or Source (Refer to below)	Grab (G) or Comp (C)	Client I.D. / Sample Location or DEQ / EPA Location Code		Field Results (pH, Temp, Chlorine, ...) (note analysis & units)			Sample Preserv. & Container	Cool <4°C	Cool <4°C	Cool <4°C HNO3	Cool <4°C	Cool <4°C	Cool <4°C
										Analysis Requested	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals* (see comments)	Radium 226 and 228 combined	Mercury (EPA 245.1)	Fluoride (EPA 300)
AEN 04										# of Container						
6	5/23/18	1100	GW	G	MW-1 DUP	MK-126556				3 10 2	X	X	X	X	X	X
	5/23/18	1037	GW	G	Blank Water	MK-126557				1 0 3	X	X	X	X	X	X

On-Site Info: Raw Alkalinity (TOC Raw)= _____ mg/L Turbidity (E.Coli)= _____ ntu

Meter Type | Standards | Final Read | Date | Time | Initials

Matrix Codes: DW = Drinkingwater ; WW = Wastewater ; SL = Sludge ; O = Other

E.Coli Source: GWUDI-FS= Groundwater under direct influence of Flowing Stream GWUDI-RL= Groundwater under direct influence of Reservoir/Lake

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period of ... such that the sample(s) taken ... representative of a ... operation day/shift for the above facility.

Signature: [signature] Date/Time 5/23/18 2:05

Sampled By: Michael Jordan Company: Oklahoma Gas & Electric Sample Method: Grab

Relinquished By: Michael Jordan Date/Time 5-23-18 3:05 Received By: [signature] Date/Time 5-23-18 1505

☐ Relinquished to Lab By: ☐ Rel'd to Lon-In Fridge By: [signature] Date/Time 5-24-18 1111 Received at Lab By: [signature] Rep # 20 Date/Time 5-24-18 1111

Reporting Requirements (standard 10-15 working days): Compliance Reporting? Yes or No (DMR, PWS,) Oklahoma PWS ID #: — — — — — — — — RUSH Request (if available): (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

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Accurate Environmental Laboratories

July 05, 2018

Client: OG&E - Muskogee

5501 Three Forks Road

Fort Gibson, OK 74434

Requested By: -

National Environmental Laboratory Accreditation Program
Kansas CERT # E-10219

Sample Project Name:	CCR Groundwater Monitoring
Date Samples Received:	May 24, 2018 Time: 11:11 sample temp upon arrival at lab = 2°C - On Ice
Matrix:	Water
Lab Log Numbers:	**AE24042-01 AE24042-02 AE24042-03 AE24042-04 AE24042-05 AE24042-06**
Work Order:	AE24042
Report #	AE24042-0705181105
EPA Lab ID#'s:	**Stillwater OK00092 Tulsa OK00983 OKC OK00129 ICR OK 001**
Oklahoma Certification:	Stillwater WasteWater, DEQ 8316/ Drinking Water, DEQ D9602 Tulsa WasteWater, DEQ 9905 / Drinking Water, DEQ D9901 Oklahoma City WasteWater DEQ 7202 / Drinking Water, DEQ D9937
Kansas Certification:	Stillwater NELAP CERT # E-10219 Oklahoma City NELAP CERT # E-10414
New Hampshire Cert.:	Oklahoma City Drinking Water NH ELAP Lab ID # 2072
Texas Certification:	Stillwater Drinking Water NELAP CERT # T105704533-14-1
Method Reference:	40 CFR 136, 141, and 261 Methods for Chemical Analysis of Water and Wastes EPA-600/4-79-020, March 1983. Test Methods for Evaluating Solid Wastes, SW-846, Final Update III. Standard Methods 1998 (20th Edition), Standard Methods 2005 (21st Edition) and Standard Methods 2011 (22nd Edition) for the Examination of Water and Wastewater.
Analysis Reference:	If qualifiers present in "Prep Info" or "Analysis Info", then analysis performed as follows: @= Tulsa Lab and * = OKC Lab. If no qualifiers present, then analysis performed at Stillwater Lab. Accurate Environmental Laboratories certify that the test results performed at the Stillwater lab meet all requirements of NELAP. Any exceptions to this can be found in the report footer or Quality Control Section of the report. This report is to only be replicated in its entirety. Accurate Environmental sampling protocol was followed for any sampling performed by Accurate Field Services.

Sample: *MW-1 MK-126551* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 5/23/18 11:00 **Lab Log#** AE24042-01

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.839	06/11/18 11:16	06/26/18 14:28
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.579 pCi/L			06/11/18 11:16	06/26/18 14:28
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.375	06/04/18 13:39	06/08/18 12:12
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.351 pCi/L			06/04/18 13:39	06/08/18 12:12

Sample: *MW-2 MK-126552* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 5/23/18 11:43 **Lab Log#** AE24042-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.955	06/11/18 11:16	06/26/18 14:28
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.719 pCi/L			06/11/18 11:16	06/26/18 14:28
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.573 pCi/L		0.383	06/04/18 13:39	06/08/18 12:43
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.481 pCi/L			06/04/18 13:39	06/08/18 12:43

Sample: *MW-3 MK-126553* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 5/23/18 12:08 **Lab Log#** AE24042-03

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.898	06/11/18 11:16	06/26/18 14:28
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.637 pCi/L			06/11/18 11:16	06/26/18 14:28
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.629 pCi/L		0.369	06/04/18 13:39	06/08/18 13:13
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.488 pCi/L			06/04/18 13:39	06/08/18 13:13

Sample: *MW-4 MK-126554* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 5/23/18 12:32 **Lab Log#** AE24042-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.903	06/11/18 11:16	06/26/18 14:28
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.676 pCi/L			06/11/18 11:16	06/26/18 14:28
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.548 pCi/L		0.366	06/04/18 13:39	06/08/18 13:43
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.460 pCi/L			06/04/18 13:39	06/08/18 13:43

Sample: *MW-5 MK-126555* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 5/23/18 12:57 **Lab Log#** AE24042-05

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	1.12 pCi/L		1.12	06/11/18 11:16	06/26/18 14:28
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.597 pCi/L			06/11/18 11:16	06/26/18 14:28
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.407	06/04/18 13:39	06/08/18 14:13
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.341 pCi/L			06/04/18 13:39	06/08/18 14:13

Sample: *Blank Water MK-126557* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 5/23/18 10:37 **Lab Log#** AE24042-06

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		1.01	06/11/18 11:16	06/26/18 14:28
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.560 pCi/L			06/11/18 11:16	06/26/18 14:28
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.393	06/04/18 13:39	06/08/18 14:43
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.164 pCi/L			06/04/18 13:39	06/08/18 14:43

Notes and Definitions

***Alpha, Beta and Radium analysis performed under NELAC certification NJ OK001 and OK 9517.

MCL Analyte concentration may exceed Maximum Contaminant Limit (MCL) for EPA Primary or Secondary Drinking Water Regulations.

Analyte concentration may exceed regulatory limit.

PQL Practical Quantitation Limit - the method reporting limit (MRL) adjusted for any dilutions or other changes made to the sample to deal with interferences/matrix effects

BPQL Below Practical Quantitation Limit (if applicable).

The "Prep Date" of the QC analysis coincides with the characters of the appropriate QC Lab ID. (Example: 12 A 02 15 - BLK = 2019, Jan 2, Batch #15 - Blank)

Lab Manager

Quality Control Data

Blank Data

QC Lab #	Test Group	Test	Result		PQL	Flags
18G0526-BLK1	Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL	pCi/L	0.587	
18G0527-BLK1	Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL	pCi/L	0.191	

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

☐ RUSH Due Date

Chain of Custody

Accurate Environmental Labs

Client Name: OG&E Muskogee Power Plant

Project Name: CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix or Source (matrix below)	Grab (G) or Comp (C)	Client I.D. / Sample Location or DEQ / EPA Location Code		Field Results (pH, Temp, Chlorine, ... Units analyte & units)			Sample Preservation & Container	Cool <4°C	Cool <4°C	Cool <4°C HNO3	Cool <4°C	Cool <4°C	Cool <4°C
										Analysis Requested & # of Containers	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals* (see comments)	Radium 226 and 228 coombined	Mercury (EPA 245.1)	Fluoride (EPA 300)
162403																
-01	5/23/18	1100	GW	G	MW-1	MK-126551				2 1	X	X	X	X	X	X
-02	5/23/18	1143	GW	G	MW-2	MK-126552				2 1	X	X	X	X	X	X
-03	5/23/18	1208	GW	G	MW-3	MK-126553				2 1	X	X	X	X	X	X
-04	5/23/18	1232	GW	G	MW-4	MK-126554				2 1	X	X	X	X	X	X
-05	5/23/18	1257	GW	G	MW-5	MK-126555				2 1	X	X	X	X	X	X

On-Site Info: Raw Alkalinity (TOC Raw) = _____ mg/L Turbidity (E.Coli) = _____ ntu

Matrix Codes: DW = Drinkingwater ; WW = Wastewater ; SL = Sludge ; O = Other _____

E.Coli Source: GWUDI-FS= Groundwater under direct influence of Flowing Stream GWUDI-RL= Groundwater under direct influence of Reservoir/Lake

Field Instrument Calibration

Meter Type	Standards	Final Read.	Date, Time	Initials

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Colbalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8) Corrections MM 5-24-18

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occured during a period such that the sample(s) is/are representative of a typical or routine day discharge for the above facility. Signature: [signature] Date/Time: 5/23/18 3:05

Sampled By: Michael Tonkin Company: Oklahoma Gas & Electric Sample Method: Grab

Relinquished By	Date/Time	Received By	Date/Time
Michael Tonkin	5/23/18 3:05	[signature]	5-23-18 1505
☐ Relinquished to Lab By: ☐ Reld'd to Log-In Fridge By: [signature]	Date/Time 5-24-18 1111	Received at Lab By: [signature] Rec'd °C 2.0	Date/Time 5-24-18 1111

Reporting Requirements (standard 10-15 working days): Compliance Reporting? Yes or No. (DMR, PWS,) Oklahoma PWS ID # _____ RUSH Request (if available) _____ (Working Days)

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RUSH Due Date

Chain of Custody

Accurate Environmental Labs

Client Name: OG&E Muskogee Power Plant

Project Name: CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix or Source (Refer to below)	Grab (G) or Comp (C)	Client ID / Sample Location or DEQ / EPA Location Code	Field Results (pH, Temp, Chlorine, ... note units)			Sample Preservation Check	Cool <4°C	Cool <4°C	Cool <4°C HNO3	Cool <4°C	Cool <4°C	Cool <4°C
424042									Analysis Requested	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals (see comments)	Radium 226 and 228 combined	Mercury (EPA 245.1)	Fluoride (EPA 300)
	5/23/18	1125	GW	G	MW-11DUP	MK-126556									
06	5/23/18	1037	GW	G	Blank Water	MK-126557			10	X	X	X	X	X	X

On-Site Info: Raw Alkalinity (TOC Raw) = _____ mg/L Turbidity (E.Coli) = _____ ntu

Matrix Codes: DW = Drinkingwater; WW = Wastewater; SL = Sludge; O = Other

E.Coli Source: GWUDI-FS = Groundwater under direct influence of Flowing Stream GWUDI-RL = Groundwater under direct influence of Reservoir/Lake

Field Instrument Calibration

Meter Type	Standards	Final Read.	Date, Time	Initials

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Colbalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

Corrections MV 5-24-18

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Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility. Signature: _____ Date/Time 5/23/18 2:30

Sampled By: Michael Jordan Company: Oklahoma Gas & Electric Sample Method: Grab

Relinquished By: Michael Jordan	Date/Time 5-23-18 3:05	Received By:	ice	Date/Time 5-23-18 1505
☐ Relinquished to Lab By: ☐ Relq'd to Log-In Fridge By:	Date/Time 5-24-18 / 1111	Received at Lab By:	Rec'd °C 2.0	Date/Time 5-24-18 1111

Reporting Requirements (standard TAT = 5 working days) | Compliance Reporting? Yes or No (DMR, PWS,) | Oklahoma PWS ID # | RUSH Request (if available) _____ (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

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Sampling Log

Sample ID		
	Date: 6-14-2018	
	Weather Conditions and Temperature: Clear 86°	
Field Samplers	Names: Jason Childress, Jeremy Blodgett, Micheal Jordan	
MW01	Groundwater Level (ft below TOC): 10'1"	TD: 20'3"
	Sample Time: 10:01	
	Purge Volume: 5.1 gal	Field pH: 6.97 (1010)
	Comments:	
MW02	Groundwater Level (ft below TOC):: 4'4"	TD: 20'1"
	Sample Time: 10:30	
	Purge Volume: 8.16 gal	Field pH: 6.90 (10:40)
	Comments:	
MW03	Groundwater Level (ft below TOC):: 8'1"	TD: 21'6"
	Sample Time: 11:10	
	Purge Volume: 7.14 gal	Field pH: 6.82 (1120)
	Comments:	
MW04	Groundwater Level (ft below TOC):: 10'6"	TD: 22'5"
	Sample Time: 11:40	
	Purge Volume: 6.12 gal	Field pH: 6.68 (1147)
	Comments:	
MW05S	Groundwater Level (ft below TOC):: 9'8"	TD: 21'7"
	Sample Time: 12:05	
	Purge Volume: 6.12 gal	Field pH: 6.80 (1215)
	Comments:	

Additional Notes:

Groundwater Velocity **Date: 6/14/2018**

V=KI/n V = Groundwater velocity
K = Horizontal hydraulic conductivity (at site: 21.3767 µm/sec = 0.00007013'/sec = 7.013E-05)
I = Horizontal hydraulic gradient = dh/dl = difference in head/horizontal distance between wells)
n = Effective porosity = 0.29 to 0.41 (Sandy Clay) [Use 0.29]

MW1 - MW2:

dh =	1.247	MW1 =	509	10.083	498.917
dl =	1053.2	MW2 =	502	4.33	497.67
I = dh/dl =	0.001184011				

V = KI/n = 2.86326E-07 ft/sec = 0.087272 µm/sec

MW1 - MW3:

dh =	2	MW1 =	509	10.083	498.917
dl =	1390	MW3 =	505	8.083	496.917
I = dh/dl =	0.001438849				

V = KI/n = 3.47953E-07 ft/sec = 0.106056 µm/sec

MW5 - MW4:

dh =	-0.17	MW5 =	506	9.67	496.33
dl =	326.21	MW4 =	507	10.5	496.5
I = dh/dl =	-0.000521137				

V = KI/n = -1.26025E-07 ft/sec = -0.03841 µm/sec

MW5 - MW3:

dh =	-0.587	MW5 =	506	9.67	496.33
dl =	773.75	MW3 =	505	8.083	496.917
I = dh/dl =	-0.000758643				

V = KI/n = -1.83461E-07 ft/sec = -0.05592 µm/sec

Attachment 2 : Groundwater Velocity Calculation

Attachment 2 : Groundwater Flow Direction Field Notes

6-14-18

W1-MW2-MW3: HG: 0.00678 ft/ft
DOF: 144.83° clockwise from True North

W1-MW2-MW4: HG: 0.00392 ft/ft
DOF: 175.67° clockwise from True North

W1-MW2-MW5: HG: 0.0036 ft/ft
DOF: 187.59° clockwise from True North

W1-MW3-MW4: HG: 0.0014 ft/ft
DOF: 277.59° clockwise from True North

W1-MW3-MW5: HG: 0.0012 ft/ft
DOF: 248.13° clockwise from True North

W1-MW4-MW5: HG: 0.00121 ft/ft
DOF: 270.15° clockwise from True North

W2-MW3-MW4: HG: 0.00512 ft/ft
DOF: 183.3° clockwise from True North

W2-MW3-MW5: HG: 0.00326 ft/ft
DOF: 185.19° clockwise from True North

W2-MW4-MW5: HG: 0.01105 ft/ft
DOF: 36.65° clockwise from True North

W3-MW4-MW5: HG: 0.00126 ft/ft
DOF: 14.37° clockwise from True North

Accurate Environmental Laboratories

June 25, 2018

Client: OG&E - Muskogee

5501 Three Forks Road

Fort Gibson, OK 74434

Requested By: -

National Environmental Laboratory Accreditation Program
Kansas CERT # E-10219

Sample Project Name:	CCR Groundwater Monitoring
Date Samples Received:	June 15, 2018 Time: 10:14 sample temp upon arrival at lab = 1°C - On Ice
Matrix:	Water
Lab Log Numbers:	**AF15023-01 AF15023-02 AF15023-03 AF15023-04 AF15023-05 AF15023-06 AF15023-07**
Work Order:	AF15023
Report #	AF15023-0625181004
EPA Lab ID#'s:	**Stillwater OK00092 Tulsa OK00983 OKC OK00129 ICR OK 001**
Oklahoma Certification:	Stillwater WasteWater, DEQ 8316/ Drinking Water, DEQ D9602 Tulsa WasteWater, DEQ 9905 / Drinking Water, DEQ D9901 Oklahoma City WasteWater DEQ 7202 / Drinking Water, DEQ D9937
Kansas Certification:	Stillwater NELAP CERT # E-10219 Oklahoma City NELAP CERT # E-10414
New Hampshire Cert.:	Oklahoma City Drinking Water NH ELAP Lab ID # 2072
Texas Certification:	Stillwater Drinking Water NELAP CERT # T105704533-14-1
Method Reference:	40 CFR 136, 141, and 261 Methods for Chemical Analysis of Water and Wastes EPA-600/4-79-020, March 1983. Test Methods for Evaluating Solid Wastes, SW-846, Final Update III. Standard Methods 1998 (20th Edition), Standard Methods 2005 (21st Edition) and Standard Methods 2011 (22nd Edition) for the Examination of Water and Wastewater.
Analysis Reference:	If qualifiers present in "Prep Info" or "Analysis Info", then analysis performed as follows: @= Tulsa Lab and * = OKC Lab. If no qualifiers present, then analysis performed at Stillwater Lab.

Accurate Environmental Laboratories certify that the test results performed at the Stillwater lab meet all requirements of NELAP. Any exceptions to this can be found in the report footer or Quality Control Section of the report.

This report is to only be replicated in its entirety.

Accurate Enviornmental sampling protocol was followed for any sampling performed by Accurate Field Services.

Sample: *MK-126589* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 6/14/18 10:01 **Lab Log#** AF15023-01

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	0.822 mg/L		0.500	06/19/18 09:56 BM	06/21/18 00:11 BM
Fluoride EPA 300.0	Fluoride	0.24 mg/L		0.10	06/19/18 09:56 BM	06/21/18 00:11 BM
Sulfate EPA 300.0	Sulfate	12.8 mg/L		5.00	06/19/18 09:56 BM	06/19/18 17:07 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	413.0 mg/L		25.0	06/20/18 10:22 CL	06/21/18 15:22 CL
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	06/18/18 16:00 RW	06/19/18 22:59 PD
Arsenic (As) EPA 6020A	Arsenic	BPQL mg/L		0.005	06/18/18 16:00 RW	06/19/18 22:59 PD
Barium (Ba) EPA 6020A	Barium	0.170 mg/L		0.005	06/18/18 16:00 RW	06/19/18 22:59 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	06/18/18 16:00 RW	06/19/18 22:59 PD
Boron (B) EPA 6020A	Boron	0.079 mg/L		0.025	06/18/18 16:00 RW	06/20/18 17:14 LF
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	06/18/18 16:00 RW	06/19/18 22:59 PD
Calcium (Ca) EPA 6010B	Calcium	112 mg/L		0.50	06/18/18 16:00 RW	06/20/18 14:58 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	06/18/18 16:00 RW	06/19/18 22:59 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	06/18/18 16:00 RW	06/19/18 22:59 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	06/18/18 16:00 RW	06/19/18 22:59 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	06/18/18 16:00 RW	06/20/18 11:47 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	06/20/18 08:30 RW	06/20/18 14:30 rw
Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL mg/L		0.005	06/18/18 16:00 RW	06/19/18 22:59 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	06/18/18 16:00 RW	06/19/18 22:59 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	06/18/18 16:00 RW	06/19/18 22:59 PD

Sample: *MW-2 MK-126590* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 6/14/18 10:30 **Lab Log#** AF15023-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	36.3 mg/L		5.00	06/19/18 09:56 BM	06/19/18 18:11 BM
Fluoride EPA 300.0	Fluoride	0.23 mg/L		0.10	06/19/18 09:56 BM	06/21/18 00:53 BM
Sulfate EPA 300.0	Sulfate	94.5 mg/L		5.00	06/19/18 09:56 BM	06/19/18 18:11 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	580.0 mg/L		25.0	06/20/18 10:22 CL	06/21/18 15:22 CL
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:26 PD
Arsenic (As) EPA 6020A	Arsenic	BPQL mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:26 PD
Barium (Ba) EPA 6020A	Barium	0.225 mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:26 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	06/18/18 16:00 RW	06/19/18 23:26 PD
Boron (B) EPA 6020A	Boron	0.217 mg/L		0.025	06/18/18 16:00 RW	06/20/18 17:19 LF
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	06/18/18 16:00 RW	06/19/18 23:26 PD
Calcium (Ca) EPA 6010B	Calcium	128 mg/L		0.50	06/18/18 16:00 RW	06/20/18 15:00 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	06/18/18 16:00 RW	06/19/18 23:26 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	06/18/18 16:00 RW	06/19/18 23:26 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:26 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	06/18/18 16:00 RW	06/20/18 11:51 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	06/20/18 08:30 RW	06/20/18 14:33 rw

Sample: **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 6/14/18 10:30 **Lab Log#** AF15023-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:26 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:26 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	06/18/18 16:00 RW	06/19/18 23:26 PD

Sample: *MW-3 MK-126591* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 6/14/18 11:10 **Lab Log#** AF15023-03

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	162 mg/L		12.5	06/19/18 09:56 BM	06/19/18 18:32 BM
Fluoride EPA 300.0	Fluoride	0.18 mg/L		0.10	06/19/18 09:56 BM	06/21/18 01:14 BM
Sulfate EPA 300.0	Sulfate	188 mg/L		12.5	06/19/18 09:56 BM	06/19/18 18:32 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	1127 mg/L		25.0	06/20/18 10:22 CL	06/21/18 15:22 CL
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:36 PD
Arsenic (As) EPA 6020A	Arsenic	0.006 mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:36 PD
Barium (Ba) EPA 6020A	Barium	0.335 mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:36 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	06/18/18 16:00 RW	06/19/18 23:36 PD
Boron (B) EPA 6020A	Boron	0.065 mg/L		0.025	06/18/18 16:00 RW	06/20/18 17:24 LF
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	06/18/18 16:00 RW	06/19/18 23:36 PD
Calcium (Ca) EPA 6010B	Calcium	236 mg/L		0.50	06/18/18 16:00 RW	06/20/18 15:03 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	06/18/18 16:00 RW	06/19/18 23:36 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	06/18/18 16:00 RW	06/19/18 23:36 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:36 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	06/18/18 16:00 RW	06/20/18 11:55 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	06/20/18 08:30 RW	06/20/18 14:37 rw
Molybdenum (Mo) EPA 6020A	Molybdenum	0.006 mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:36 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:36 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	06/18/18 16:00 RW	06/19/18 23:36 PD

Sample: *MW-4 MK-126592* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 6/14/18 11:40 **Lab Log#** AF15023-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	138 mg/L		25.0	06/19/18 09:56 BM	06/19/18 18:53 BM
Fluoride EPA 300.0	Fluoride	0.16 mg/L		0.10	06/19/18 09:56 BM	06/21/18 01:36 BM
Sulfate EPA 300.0	Sulfate	339 mg/L		25.0	06/19/18 09:56 BM	06/19/18 18:53 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	1454 mg/L		25.0	06/20/18 10:22 CL	06/21/18 15:22 CL
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:47 PD
Arsenic (As) EPA 6020A	Arsenic	0.007 mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:47 PD
Barium (Ba) EPA 6020A	Barium	0.251 mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:47 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	06/18/18 16:00 RW	06/19/18 23:47 PD
Boron (B) EPA 6020A	Boron	0.068 mg/L		0.025	06/18/18 16:00 RW	06/20/18 17:30 LF
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	06/18/18 16:00 RW	06/19/18 23:47 PD

Sample: Location Code: PWSID#:

Collection Type: Grab Sample Time: 6/14/18 11:40 Lab Log# AF15023-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Calcium (Ca) EPA 6010B	Calcium	340 mg/L		0.50	06/18/18 16:00 RW	06/20/18 15:06 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	06/18/18 16:00 RW	06/19/18 23:47 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	06/18/18 16:00 RW	06/19/18 23:47 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:47 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	06/18/18 16:00 RW	06/20/18 11:59 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	06/20/18 08:30 RW	06/20/18 14:46 rw
Molybdenum (Mo) EPA 6020A	Molybdenum	0.006 mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:47 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:47 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	06/18/18 16:00 RW	06/19/18 23:47 PD

Sample: *MW-5 MK-126593* Location Code: PWSID#:

Collection Type: Grab Sample Time: 6/14/18 12:05 Lab Log# AF15023-05

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	24.6 mg/L		2.50	06/19/18 09:56 BM	06/21/18 00:32 BM
Fluoride EPA 300.0	Fluoride	0.16 mg/L		0.10	06/19/18 09:56 BM	06/21/18 03:21 BM
Sulfate EPA 300.0	Sulfate	144 mg/L		12.5	06/19/18 09:56 BM	06/19/18 19:14 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	867.0 mg/L		25.0	06/20/18 10:22 CL	06/21/18 15:22 CL
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:58 PD
Arsenic (As) EPA 6020A	Arsenic	BPQL mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:58 PD
Barium (Ba) EPA 6020A	Barium	0.142 mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:58 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	06/18/18 16:00 RW	06/19/18 23:58 PD
Boron (B) EPA 6020A	Boron	0.247 mg/L		0.025	06/18/18 16:00 RW	06/20/18 17:36 LF
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	06/18/18 16:00 RW	06/19/18 23:58 PD
Calcium (Ca) EPA 6010B	Calcium	294 mg/L		0.50	06/18/18 16:00 RW	06/20/18 15:09 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	06/18/18 16:00 RW	06/19/18 23:58 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	06/18/18 16:00 RW	06/19/18 23:58 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:58 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	06/18/18 16:00 RW	06/20/18 12:04 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	06/20/18 08:30 RW	06/20/18 14:49 rw
Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:58 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	06/18/18 16:00 RW	06/19/18 23:58 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	06/18/18 16:00 RW	06/19/18 23:58 PD

Sample: *MW-2 Dup MK-126594* Location Code: PWSID#:

Collection Type: Grab Sample Time: 6/14/18 10:30 Lab Log# AF15023-06

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	36.6 mg/L		5.00	06/19/18 09:56 BM	06/19/18 19:35 BM
Fluoride EPA 300.0	Fluoride	0.26 mg/L		0.10	06/19/18 09:56 BM	06/21/18 01:57 BM
Sulfate EPA 300.0	Sulfate	95.6 mg/L		5.00	06/19/18 09:56 BM	06/19/18 19:35 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	595.0 mg/L		25.0	06/20/18 10:22 CL	06/21/18 15:22 CL

Sample: Location Code: PWSID#:

Collection Type: Grab Sample Time: 6/14/18 10:30 Lab Log# AF15023-06

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	06/18/18 16:00 RW	06/20/18 00:09 PD
Arsenic (As) EPA 6020A	Arsenic	BPQL mg/L		0.005	06/18/18 16:00 RW	06/20/18 00:09 PD
Barium (Ba) EPA 6020A	Barium	0.226 mg/L		0.005	06/18/18 16:00 RW	06/20/18 00:09 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	06/18/18 16:00 RW	06/20/18 00:09 PD
Boron (B) EPA 6020A	Boron	0.216 mg/L		0.025	06/18/18 16:00 RW	06/20/18 17:41 LF
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	06/18/18 16:00 RW	06/20/18 00:09 PD
Calcium (Ca) EPA 6010B	Calcium	130 mg/L		0.50	06/18/18 16:00 RW	06/20/18 15:12 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	06/18/18 16:00 RW	06/20/18 00:09 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	06/18/18 16:00 RW	06/20/18 00:09 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	06/18/18 16:00 RW	06/20/18 00:09 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	06/18/18 16:00 RW	06/20/18 12:08 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	06/20/18 08:30 RW	06/20/18 14:52 rw
Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL mg/L		0.005	06/18/18 16:00 RW	06/20/18 00:09 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	06/18/18 16:00 RW	06/20/18 00:09 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	06/18/18 16:00 RW	06/20/18 00:09 PD

Sample: *Blank Water MK-126595* Location Code: PWSID#:

Collection Type: Grab Sample Time: 6/14/18 12:26 Lab Log# AF15023-07

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	BPQL mg/L		0.500	06/19/18 09:56 BM	06/19/18 19:56 BM
Fluoride EPA 300.0	Fluoride	BPQL mg/L		0.10	06/19/18 09:56 BM	06/21/18 12:03 BM
Sulfate EPA 300.0	Sulfate	BPQL mg/L		0.500	06/19/18 09:56 BM	06/19/18 19:56 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	BPQL mg/L		25.0	06/20/18 10:22 CL	06/21/18 15:22 CL
Antimony (Sb) EPA 6020A	Antimony	BPQL mg/L		0.005	06/18/18 16:00 RW	06/20/18 00:36 PD
Arsenic (As) EPA 6020A	Arsenic	BPQL mg/L		0.005	06/18/18 16:00 RW	06/20/18 00:36 PD
Barium (Ba) EPA 6020A	Barium	BPQL mg/L		0.005	06/18/18 16:00 RW	06/20/18 00:36 PD
Beryllium (Be) EPA 6020A	Beryllium	BPQL mg/L		0.001	06/18/18 16:00 RW	06/20/18 00:36 PD
Boron (B) EPA 6020A	Boron	BPQL mg/L		0.025	06/18/18 16:00 RW	06/20/18 17:46 LF
Cadmium (Cd) EPA 6020A	Cadmium	BPQL mg/L		0.001	06/18/18 16:00 RW	06/20/18 00:36 PD
Calcium (Ca) EPA 6010B	Calcium	BPQL mg/L		0.10	06/18/18 16:00 RW	06/20/18 14:26 LF
Chromium (Cr) EPA 6020A	Chromium	BPQL mg/L		0.010	06/18/18 16:00 RW	06/20/18 00:36 PD
Cobalt (Co) EPA 6020A	Cobalt	BPQL mg/L		0.010	06/18/18 16:00 RW	06/20/18 00:36 PD
Lead (Pb) EPA 6020A	Lead	BPQL mg/L		0.005	06/18/18 16:00 RW	06/20/18 00:36 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	06/18/18 16:00 RW	06/20/18 12:25 LF
Mercury (Hg) EPA 7470A	Mercury	BPQL ug/L		0.050	06/20/18 08:30 RW	06/20/18 14:55 rw
Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL mg/L		0.005	06/18/18 16:00 RW	06/20/18 00:36 PD
Selenium (Se) EPA 6020A	Selenium	BPQL mg/L		0.005	06/18/18 16:00 RW	06/20/18 00:36 PD
Thallium (Tl) EPA 6020A	Thallium	BPQL mg/L		0.001	06/18/18 16:00 RW	06/20/18 00:36 PD

Notes and Definitions

#52	Analyte recoveries are outside of acceptance limits for the matrix spike sample. This failure does not invalidate data reported.
MCL	Analyte concentration may exceed Maximum Contaminant Limit (MCL) for EPA Primary or Secondary Drinking Water Regulations.
###	Analyte concentration may exceed regulatory limit.
PQL	Practical Quantitation Limit - the method reporting limit (MRL) adjusted for any dilutions or other changes made to the sample to deal with interferences/matrix effects
BPQL	Below Practical Quantitation Limit (If applicable).

The "Prep Date" of the QC analysis coincides with the characters of the appropriate QC Lab ID. (Example: 19 A 02 15 - BLK = 2019, Jan 2, Batch #15 - Blank)

Lab Manager

Quality Control Data

Blank Data

QC Lab #	Test Group	Test	Result		PQL	Flags
18F1902-BLK1	Chloride EPA 300.0	Chloride	BPQL	mg/L	0.500	
18F1902-BLK1	Fluoride EPA 300.0	Fluoride	BPQL	mg/L	0.10	
18F1902-BLK1	Sulfate EPA 300.0	Sulfate	BPQL	mg/L	0.500	
18F2043-BLK1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	BPQL	mg/L	25.0	
18F1853-BLK1	Antimony (Sb) EPA 6020A	Antimony	BPQL	mg/L	0.005	
18F1853-BLK1	Arsenic (As) EPA 6020A	Arsenic	BPQL	mg/L	0.005	
18F1853-BLK1	Barium (Ba) EPA 6020A	Barium	BPQL	mg/L	0.005	
18F1853-BLK1	Beryllium (Be) EPA 6020A	Beryllium	BPQL	mg/L	0.001	
18F1853-BLK1	Boron (B) EPA 6020A	Boron	BPQL	mg/L	0.025	
18F1853-BLK1	Cadmium (Cd) EPA 6020A	Cadmium	BPQL	mg/L	0.001	
18F1854-BLK1	Calcium (Ca) EPA 6010B	Calcium	BPQL	mg/L	0.10	
18F1853-BLK1	Chromium (Cr) EPA 6020A	Chromium	BPQL	mg/L	0.010	
18F1853-BLK1	Cobalt (Co) EPA 6020A	Cobalt	BPQL	mg/L	0.010	
18F1853-BLK1	Lead (Pb) EPA 6020A	Lead	BPQL	mg/L	0.005	
18F1853-BLK1	Lithium (Li) EPA 6020A	Lithium	BPQL	mg/L	0.050	
18F2039-BLK1	Mercury (Hg) EPA 7470A	Mercury	BPQL	ug/L	0.050	
18F1853-BLK1	Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL	mg/L	0.005	
18F1853-BLK1	Selenium (Se) EPA 6020A	Selenium	BPQL	mg/L	0.005	
18F1853-BLK1	Thallium (Tl) EPA 6020A	Thallium	BPQL	mg/L	0.001	

Laboratory Control Sample Data

Lab QC#	Test Group	Test Name	LCS Result	Spike Level	Units	% Rec.	Control Limits	Flags
18F1902-BS1	Chloride EPA 300.0	Chloride	2.98	3.000	mg/L	100	90 - 110	
18F1902-BS1	Fluoride EPA 300.0	Fluoride	2.07	2.000	mg/L	104	90 - 110	
18F1902-BS1	Sulfate EPA 300.0	Sulfate	15.3	15.00	mg/L	102	90 - 110	
18F2043-BS1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	980.0	1000	mg/L	98	80 - 120	
18F1853-BS1	Antimony (Sb) EPA 6020A	Antimony	0.098	0.1000	mg/L	98	85 - 115	
18F1853-BS1	Arsenic (As) EPA 6020A	Arsenic	0.100	0.1000	mg/L	100	85 - 115	
18F1853-BS1	Barium (Ba) EPA 6020A	Barium	0.099	0.1000	mg/L	99	85 - 115	
18F1853-BS1	Beryllium (Be) EPA 6020A	Beryllium	0.105	0.1000	mg/L	105	85 - 115	
18F1853-BS1	Boron (B) EPA 6020A	Boron	0.096	0.1000	mg/L	96	85 - 115	
18F1853-BS1	Cadmium (Cd) EPA 6020A	Cadmium	0.099	0.1000	mg/L	99	85 - 115	
18F1853-BS1	Chromium (Cr) EPA 6020A	Chromium	0.102	0.1000	mg/L	102	85 - 115	
18F1853-BS1	Cobalt (Co) EPA 6020A	Cobalt	0.098	0.1000	mg/L	98	85 - 115	
18F1853-BS1	Lead (Pb) EPA 6020A	Lead	0.097	0.1000	mg/L	97	85 - 115	
18F1853-BS1	Lithium (Li) EPA 6020A	Lithium	0.907	1.000	mg/L	91	85 - 115	
18F1853-BS1	Molybdenum (Mo) EPA 6020A	Molybdenum	0.100	0.1000	mg/L	100	85 - 115	
18F1853-BS1	Selenium (Se) EPA 6020A	Selenium	0.098	0.1000	mg/L	98	85 - 115	
18F1853-BS1	Thallium (Tl) EPA 6020A	Thallium	0.097	0.1000	mg/L	97	85 - 115	
18F1854-BS1	Calcium (Ca) EPA 6010B	Calcium	1.97	2.000	mg/L	98	85 - 115	
18F2039-BS1	Mercury (Hg) EPA 7470A	Mercury	1.6	1.667	ug/L	99	85 - 115	

Quality Control Data

Matrix Spike Data

QC Lab #	Test Group	Test Name	Source Sample	Sample Result	Units	Spike Result	Spike Level	% Rec.	Acceptance Limits	Flags
18F1853-MS1	Antimony (Sb) EPA 6020A	Antimony	AF15023-01	BPQL	mg/L	0.095	0.1000	95	85 - 115	
18F1853-MS1	Arsenic (As) EPA 6020A	Arsenic	AF15023-01	0.004	mg/L	0.101	0.1000	97	85 - 115	
18F1853-MS1	Barium (Ba) EPA 6020A	Barium	AF15023-01	0.170	mg/L	0.261	0.1000	91	85 - 115	
18F1853-MS1	Beryllium (Be) EPA 6020A	Beryllium	AF15023-01	BPQL	mg/L	0.100	0.1000	100	85 - 115	
18F1853-MS1	Boron (B) EPA 6020A	Boron	AF15023-01	0.079	mg/L	0.165	0.1000	86	85 - 115	
18F1853-MS1	Cadmium (Cd) EPA 6020A	Cadmium	AF15023-01	BPQL	mg/L	0.093	0.1000	93	85 - 115	
18F1854-MS1	Calcium (Ca) EPA 6010B	Calcium	AF15023-02	128	mg/L	132	2.000	175	85 - 115	#52
18F1853-MS1	Chromium (Cr) EPA 6020A	Chromium	AF15023-01	BPQL	mg/L	0.096	0.1000	96	85 - 115	
18F1853-MS1	Cobalt (Co) EPA 6020A	Cobalt	AF15023-01	BPQL	mg/L	0.092	0.1000	92	85 - 115	
18F1853-MS1	Lead (Pb) EPA 6020A	Lead	AF15023-01	BPQL	mg/L	0.091	0.1000	91	85 - 115	
18F1853-MS1	Lithium (Li) EPA 6020A	Lithium	AF15023-01	BPQL	mg/L	1.02	1.000	102	85 - 115	
18F2039-MS1	Mercury (Hg) EPA 7470A	Mercury	AF15023-03	BPQL	ug/L	1.4	1.667	82	75 - 125	
18F1853-MS1	Molybdenum (Mo) EPA 6020A	Molybdenum	AF15023-01	BPQL	mg/L	0.099	0.1000	99	85 - 115	
18F1853-MS1	Selenium (Se) EPA 6020A	Selenium	AF15023-01	BPQL	mg/L	0.093	0.1000	93	85 - 115	
18F1853-MS1	Thallium (Tl) EPA 6020A	Thallium	AF15023-01	BPQL	mg/L	0.095	0.1000	95	85 - 115	

Matrix Spike Duplicate Data

QC Lab #	Test Group	Test Name	Sample Result	Spike Result	Spike Level	Units	% Rec.	Rec. Limits	% RPD	RPD Limit	Flags
18F1853-MSD1	Antimony (Sb) EPA 6020A	Antimony	BPQL	0.097	0.1000	mg/L	97	85-115	3	20	
18F1853-MSD1	Arsenic (As) EPA 6020A	Arsenic	0.004	0.100	0.1000	mg/L	96	85-115	1	20	
18F1853-MSD1	Barium (Ba) EPA 6020A	Barium	0.170	0.271	0.1000	mg/L	101	85-115	4	20	
18F1853-MSD1	Beryllium (Be) EPA 6020A	Beryllium	BPQL	0.103	0.1000	mg/L	103	85-115	2	20	
18F1853-MSD1	Boron (B) EPA 6020A	Boron	0.079	0.171	0.1000	mg/L	92	85-115	3	20	
18F1853-MSD1	Cadmium (Cd) EPA 6020A	Cadmium	BPQL	0.095	0.1000	mg/L	95	85-115	2	20	
18F1854-MSD1	Calcium (Ca) EPA 6010B	Calcium	128	130	2.000	mg/L	125	85-115	0.8	20	#52
18F1853-MSD1	Chromium (Cr) EPA 6020A	Chromium	BPQL	0.097	0.1000	mg/L	97	85-115	0.3	20	
18F1853-MSD1	Cobalt (Co) EPA 6020A	Cobalt	BPQL	0.094	0.1000	mg/L	94	85-115	2	20	
18F1853-MSD1	Lead (Pb) EPA 6020A	Lead	BPQL	0.094	0.1000	mg/L	94	85-115	4	20	
18F1853-MSD1	Lithium (Li) EPA 6020A	Lithium	BPQL	1.06	1.000	mg/L	106	85-115	4	20	
18F2039-MSD1	Mercury (Hg) EPA 7470A	Mercury	BPQL	1.4	1.667	ug/L	84	75-125	3	20	
18F1853-MSD1	Molybdenum (Mo) EPA 6020A	Molybdenum	BPQL	0.102	0.1000	mg/L	102	85-115	3	20	
18F1853-MSD1	Selenium (Se) EPA 6020A	Selenium	BPQL	0.092	0.1000	mg/L	92	85-115	1	20	
18F1853-MSD1	Thallium (Tl) EPA 6020A	Thallium	BPQL	0.097	0.1000	mg/L	97	85-115	2	20	

Attachment 2 : Analytical Report

*** Complete Entire COC to be in Compliance***

☐ **RUSH** **Due Date** _____

Chain of Custody

Accurate Environmental Labs

Client Name- **OG&E Muskogee Power Plant**

Project Name- **CCR Groundwater Monitoring**

Accurate Sample Number (Lab Use Only)	Date Sample Taken	Time Sample Taken	Matrix	Grab (G) or Comp (C)	Client I.D. / Sample Location or DEQ / EPA Location Code		Field Results (pH, Temp, Chlorine, ...) (note analysis & units)			Sample / Preserv. & Container →	Cool <4°C	Cool <4°C	Cool <4°C HNO3	Cool <4°C	Cool <4°C	Cool <4°C
							( )	( )	( )	Analysis Requested →	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals* (see comments)	Radium 226 and 228 coombined	Mercury (EPA 245.1)	Fluoride (EPA 300)
AF15123										# of Container →						
-01	6/14/18	0900	GW	G	MW-1	MK-126589				3	X	X	X	X	X	X
-02	6/14/18	1030	GW	G	MW-2	MK-126590				3	X	X	X	X	X	X
-03	6/14/18	1110	GW	G	MW-3	MK-126591				3	X	X	X	X	X	X
-04	6/14/18	1140	GW	G	MW-4	MK-126592				3	X	X	X	X	X	X
-05	6/14/18	1205	GW	G	MW-5	MK-126593				3	X	X	X	X	X	X

On-Site Info.: *Raw Alkalinity (TOC Raw)*= _____ mg/L Turbidity (E.Coli)= _____ ntu

Matrix Codes DW = *Drinkingwater* ; WW = *Wastewater* ; SL = *Sludge* ; O = *Other*

E.Coli Source GWUDI-FS= *Groundwater under direct influence of Flowing Stream* GWUDI-RL= *Groundwater under direct influence of Reservoir/Lake*

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

Field Instrument Calibration

Meter Type	Standards	Final Read.	Date / Time	Initials

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility. **Signature:** _____ Date/Time 13:20 6/14/18

Sampled By: Michael Jordan **Company:** Oklahoma Gas & Electric **Sample Method:** Grab

Relinquished By:	Date/Time	Received By:	Date/Time
☐ Relinquished to Lab By:			
☐ Rel'd to Log-In Fridge By:	Date/Time 6-15-18 1014	Received at Lab By:	Rec'd °C 4.3 Date/Time 6-15-18 1014

Reporting Requirements (standard 10-15 working days) | Compliance Reporting? Yes or No (DMR, PWS,) | Oklahoma PWS ID #: _____ | ☐ RUSH Required (if available) _____ (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079 **Fax #:** (405) 553-4063

Email:

Mail Invoice To: Email invoice to: APVendorInvoices@oge.com

Bid # -

PO # -

Phone #: (553-4079) **Fax #:** (405) 553-4063

www.accuratelabs.com (800) 516-5227

505 South Lowry Street, Stillwater, OK 74074 Phone: (405) 372-5300 Fax: (405) 372-5396

6558 E. 40th Street, Tulsa, OK 74074 Phone: (918) 663-5400 Fax: (918) 663-6300

12036 N. Pennsylvania, Oklahoma City, OK 73120 Phone: (405) 751-3132 Fax: (405) 751-3108

Attachment 2 : Analytical Report

*** Complete Entire COC to be in Compliance***

☐ **RUSH** **Due Date**

Chain of Custody

Accurate Environmental Labs

Client Name: **OG&E Muskogee Power Plant**

Project Name: **CCR Groundwater Monitoring**

Accurate Work Order #	Date Sample Collected	Time Sample Collected	Matrix	Grab (G) or Composite (C)	Client I.D. / Sample Location	Field Results (pH, Temp, Chlorine, Sulfide) (note analysis & units)	Analysis Requested / # of Containers	Cool <4°C	Cool <4°C	Cool <4°C HNO3	Cool <4°C		Cool <4°C	Cool <4°C
AF15823								Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals* (see comments)	Radium 226 and 228 combined		Mercury (EPA 245.1)	Fluoride (EPA 300)
-04	6/14/18	1030	GW	G	MW-2 DUP MK-126594		3	X	X	X	X		X	X
-05	6/14/18	1276	GW	G	Blank Water MK-126595		3	X	X	X	X		X	X

On-Site Info	Raw Alkalinity (TOC Raw)= _____ mg/L	Turbidity (E.Coli)= _____ ntu

Matrix Codes: DW = Drinkingwater ; WW = Wastewater ; SL = Sludge ; O = Other _____

E. Coli Source: GWUDI-FS= Groundwater under direct influence of Flowing Stream GWUDI-RL= Groundwater under direct influence of Reservoir/Lake

Field Instrument Calibration

Meter Type	Standards	Final Read.	Date , Time	Initials

Comments: Boron (EPA 200.8); Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occured during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility. Signature: _____ Date/Time: 1300 6-14-18

Sampled By: Micheal Jordan Company: Oklahoma Gas & Electric Sample Method: Grab

Relinquished By:	Date/Time	Received By:	Date/Time
☐ Relinquished to Lab By:			
☐ Rel'd to Lab in Fridge By:	Date/Time 6-15-18 1014	Received at Lab By:	Rec'd: 13 Date/Time 6-15-18 1014

Reporting Requirements (standard TAT reporting days)

Compliance Reporting? Yes or No (DMR, PWS,)

Oklahoma PWS ID #: _ _ _ _ _ _ _ _ _

RUSH Request (if available): _____ (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

Mail Invoice To: Email invoice to:

Address: APVendorInvoices@oge.com

Bid # -

PO # -

Phone #: (553-4079) Fax #: (405) 553-4063

www.accuratelabs.com (800) 516-5227

505 South Lowry Street Phone: (405) 372-5300 Stillwater, OK 74074 Fax: (405) 372-5396

6558 E. 40th Street Phone: (918) 663-5400 Tulsa, OK 74074 Fax: (918) 663-6300

12036 N. Pennsylvania Phone: (405) 751-3132 Oklahoma City, OK 73120 Fax: (405) 751-3108

Accurate Environmental Laboratories

July 30, 2018

Client: OG&E - Muskogee

5501 Three Forks Road

Fort Gibson, OK 74434

Requested By: Chuck Smithson

National Environmental Laboratory Accreditation Program Kansas CERT # E-10219

Sample Project Name:	CCR Groundwater Monitoring
Date Samples Received:	June 15, 2018 Time: 10:14 sample temp upon arrival at lab = 1°C - On Ice
Matrix:	Water
Lab Log Numbers:	AF15028-01 AF15028-02 AF15028-03 AF15028-04 AF15028-05 AF15028-06 AF15028-07
Work Order:	AF15028
Report #	AF15028-0730181002
EPA Lab ID#'s:	Stillwater OK00092 Tulsa OK00983 OKC OK00129 ICR OK 001
Oklahoma Certification:	Stillwater WasteWater, DEQ 8316/ Drinking Water, DEQ D9602 Tulsa WasteWater, DEQ 9905 / Drinking Water, DEQ D9901 Oklahoma City WasteWater DEQ 7202 / Drinking Water, DEQ D9937
Kansas Certification:	Stillwater NELAP CERT # E-10219 Oklahoma City NELAP CERT # E-10414
New Hampshire Cert.:	Oklahoma City Drinking Water NH ELAP Lab ID # 2072
Texas Certification:	Stillwater Drinking Water NELAP CERT # T105704533-14-1
Method Reference:	40 CFR 136, 141, and 261 Methods for Chemical Analysis of Water and Wastes EPA-600/4-79-020, March 1983. Test Methods for Evaluating Solid Wastes, SW-846, Final Update III. Standard Methods 1998 (20th Edition), Standard Methods 2005 (21st Edition) and Standard Methods 2011 (22nd Edition) for the Examination of Water and Wastewater.
Analysis Reference:	If qualifiers present in "Prep Info" or "Analysis Info", then analysis performed as follows: @= Tulsa Lab and * = OKC Lab. If no qualifiers present, then analysis performed at Stillwater Lab. Accurate Environmental Laboratories certify that the test results performed at the Stillwater lab meet all requirements of NELAP. Any exceptions to this can be found in the report footer or Quality Control Section of the report. This report is to only be replicated in its entirety. Accurate Environmental sampling protocol was followed for any sampling performed by Accurate Field Services.

Sample: *MW-1 MK-126589* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 6/14/18 10:01 **Lab Log#** AF15028-01

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.690	06/22/18 09:43	07/12/18 15:25
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.469 pCi/L			06/22/18 09:43	07/12/18 15:25
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.228	06/22/18 09:43	07/16/18 15:45
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.199 pCi/L			06/22/18 09:43	07/16/18 15:45

Sample: *MW-2 MK-126590* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 6/14/18 10:30 **Lab Log#** AF15028-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.736	06/22/18 09:43	07/12/18 15:25
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.510 pCi/L			06/22/18 09:43	07/12/18 15:25
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.228	06/22/18 09:43	07/16/18 16:15
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.199 pCi/L			06/22/18 09:43	07/16/18 16:15

Sample: *MW-3 MK-126591* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 6/14/18 11:10 **Lab Log#** AF15028-03

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	1.03 pCi/L		0.827	06/22/18 09:43	07/12/18 15:25
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.535 pCi/L			06/22/18 09:43	07/12/18 15:25
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.228	06/22/18 09:43	07/16/18 16:45
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.263 pCi/L			06/22/18 09:43	07/16/18 16:45

Sample: *MW-4 MK-126592* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 6/14/18 11:40 **Lab Log#** AF15028-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.705	06/22/18 09:43	07/12/18 15:25
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.386 pCi/L			06/22/18 09:43	07/12/18 15:25
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.227	06/22/18 09:43	07/16/18 17:16
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.186 pCi/L			06/22/18 09:43	07/16/18 17:16

Sample: ***MW-5 MK-126593*** **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 6/14/18 12:05 **Lab Log#** AF15028-05

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.885	06/22/18 09:43	07/12/18 15:25
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.546 pCi/L			06/22/18 09:43	07/12/18 15:25
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.227	06/22/18 09:43	07/16/18 17:46
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.211 pCi/L			06/22/18 09:43	07/16/18 17:46

Sample: ***MW-2 DUP MK-126594*** **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 6/14/18 10:30 **Lab Log#** AF15028-06

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.833	06/22/18 09:43	07/12/18 15:25
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.470 pCi/L			06/22/18 09:43	07/12/18 15:25
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.227	06/22/18 09:43	07/16/18 18:16
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.211 pCi/L			06/22/18 09:43	07/16/18 18:16

Sample: ***Blank Water MK-126595*** **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 6/14/18 12:26 **Lab Log#** AF15028-07

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.663	06/22/18 09:43	07/12/18 15:25
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.493 pCi/L			06/22/18 09:43	07/12/18 15:25
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.227	06/22/18 09:43	07/16/18 18:46
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.186 pCi/L			06/22/18 09:43	07/16/18 18:46

Notes and Definitions

***Alpha, Beta and Radium analysis performed under NELAC certification NJ OK001 and OK 9517.

MCL	Analyte concentration may exceed Maximum Contaminant Limit (MCL) for EPA Primary or Secondary Drinking Water Regulations.
###	Analyte concentration may exceed regulatory limit.
PQL	Practical Quantitation Limit - the method reporting limit (MRL) adjusted for any dilutions or other changes made to the sample to deal with interferences/matrix effects
BPQL	Below Practical Quantitation Limit (if applicable).

The "Prep Date" of the QC analysis coincides with the characters of the appropriate QC Lab ID. (Example: 19 A 02 15 - BLK = 2019, Jan 2, Batch #15 - Blank)

Lab Manager

Quality Control Data

Blank Data

QC Lab #	Test Group	Test	Result	PQL	Flags
18G3011-BLK1	Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L	0.542	
18G3011-BLK1	Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L	0.114	

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

Chain of Custody

Accurate Environmental Labs

☐ RUSH Due Date

Client Name: OG&E Muskogee Power Plant

Project Name: CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix of Sample (Solid, Liquid)	Grab (G) or Comp (C)	Client I.D. / Sample Location / DEQ/EPA Location Code	Field Results (pH, Temp, Chlorine, Conductivity/Salinity)	Sample Preserv. & Container #	Cool <4°C Boron, Calcium, Chloride, Fluoride, Sulfate	Cool <4°C TDS	Cool <4°C HNO3 Metals* (see comments)	Cool <4°C Radium 226 and 228 combined	Cool <4°C Mercury (EPA 245.1)	Cool <4°C Fluoride (EPA 300)
AF15028							Analysis Required						
-01	6/14/18	1000	GW	G	MW-1 MK- 126589		3	X	X	X	X	X	X
-02	6/14/18	1030	GW	G	MW-2 MK- 126590		3	X	X	X	X	X	X
-03	6/14/18	1110	GW	G	MW-3 MK- 126591		3	X	X	X	X	X	X
-04	6/14/18	1140	GW	G	MW-4 MK- 126592		3	X	X	X	X	X	X
-05	6/14/18	1205	GW	G	MW-5 MK- 126593		3	X	X	X	X	X	X

On Site Info: Raw Alkalinity (TOC Raw)= _____ mg/L Turbidity (E.Coli)= _____ ntu

Matrix Codes: DW = Drinkingwater ; WW = Wastewater ; SL = Sludge ; O = Other

E.Coli Source: GWUDI-FB= Groundwater under direct influence of Flowing Stream GWUDI-RL= Groundwater under direct influence of Reservoir/Lake

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

Field Instrument Calibration

Meter Type	Standards	Final Read.	Date , Time	Initials

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occured during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility. Signature:

Sampled By: Michael Jordan Company: Oklahoma Gas & Electric Date/Time: 1320 6/14/18

Sample Method: Grab

Relinquished By: Date/Time:

☐ Relinquished to Lab By:

☐ Relq'd to Log-In Rider By: Date/Time: 6-15-18 1014

Received By: Date/Time:

Received at Lab By: Rec'd °C: 1.3 Date/Time: 6-15-18 1014

Reporting Requirements (attached 40-Reporting sheet)

Compliance Reporting? Yes or No (DMR, PWS,)

Oklahoma PWS ID # _ _ _ _ _ _ _ _ _

RUSH Request (if available) _____ (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

Mail Invoice To: Email invoice to:

Address: APVendorInvoices@oge.com

Bid # -

PO # -

Phone #: (553-4079) Fax #: (405) 553-4063

www.accuratelabs.com (800) 516-5227

505 South Lowry Street, Stillwater, OK 74074 Phone: (405) 372-5300 Fax: (405) 372-5396

6558 E. 40th Street, Tulsa, OK 74074 Phone: (918) 663-5400 Fax: (918) 663-6300

12036 N. Pennsylvania, Oklahoma City, OK 73120 Phone: (405) 751-3132 Fax: (405) 751-3108

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

Chain of Custody

Accurate Environmental Labs

RUSH Due Date

Client Name: OG&E Muskogee Power Plant

Project Name: CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix or Source (Water, Solid)	Grab (G) or Comp (C)	Client I.D. / Sample Location or DEQ / EPA Location Code	Field Results (pH, Temp, Chlorine, Conductivity, etc.)	Analysis Requested (Preservative & Container #)	Sample Preserved & Chilled *	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals* (see comments)	Radium 226 and 228 combined	Mercury (EPA 245.1)	Fluoride (EPA 300)
								Cool <4°C	Cool <4°C	Cool <4°C	Cool <4°C	Cool <4°C	Cool <4°C	Cool <4°C
AF15														
-06	6/14/18	1030	GW	G	MW-2 DUP MK-126594		3	X	X	X	X	X	X	
-07	6/14/18	1226	GW	G	Blank Water MK-126595		3	X	X	X	X	X	X	

Rush 6-15-18

On-Site Info: *Raw Alkalinity (TOC Raw)=* _____ *mg/L* *Turbidity (E.Coli)=* _____ *ntu*

Matrix Codes: DW = *Drinkingwater*; WW = *Wastewater*; SL = *Sludge*; O = *Other*

B.Cell Sources: GWUDI-FS= *Groundwater under direct influence of Flowing Stream* GWUDI-RL= *Groundwater under direct influence of Reservoir/Lake*

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

Field Instrument Calibration

Meter Type	Standards	Final Read.	Date, Time	Initials

-- All Glass containers provided by Accurate Labs have Teflon lined lids --.

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility.

Signature:

Sampled By: Micheal Jordan

Company: Oklahoma Gas & Electric

Date/Time: 1300 6-14-18

Sample Method: Grab

Relinquished By:

Date/Time:

Received By:

Date/Time:

☐ Relinquished to Lab By:

☐ Rec'd to Log-In Fridge By:

Date/Time: 6-15-18 1014

Received at Lab By: Rosa Ibarra

Rec'd °C: 13

Date/Time: 6-15-18 1014

Reporting Requirement: (standard 10-15 working days)

Compliance Reporting? *Yes or No* (DMR, PWS,)

Oklahoma PWS ID #

RUSH Request (if available) _____ (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: *5501 Three Forks Road, Ft. Gibson, OK 74434*

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

Mail Invoice To: Email invoice to:

Address: APVendorInvoices@oge.com

Bid # -

PO # -

Phone #: (553-4079) Fax #: (405) 553-4063

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12036 N. Pennsylvania, Oklahoma City, OK 73120 Phone: (405) 751-3132 Fax: (405) 751-3108

Sampling Log

Sample ID	**Date:** 6-27-2018
	Weather Conditions and Temperature: Cloudy 89°
Field Samplers	**Names:** Jason Childress, Jeremy Blodgett, Michael Jordan
	Groundwater Level (ft below TOC): 10'7" TD: 20'3"
MW01	**Sample Time:** 10:32
	Purge Volume: 5.1 gal **Field pH:** 6.94 (10:40)
	Comments:
	Groundwater Level (ft below TOC):: 4'8" TD: 20'
MW02	**Sample Time:** 11:00
	Purge Volume: 8.16 gal **Field pH:** 6.9 (11:09)
	Comments:
	Groundwater Level (ft below TOC):: 8'6"
MW03	**Sample Time:** 11:25
	Purge Volume: 7.14 gal **Field pH:** 6.8 (11:36)
	Comments:
	Groundwater Level (ft below TOC):: 11'2" TD: 22'4"
MW04	**Sample Time:** 11:55
	Purge Volume: 6.12 gal **Field pH:** 6.66 (12:04)
	Comments:
	Groundwater Level (ft below TOC):: 10'5"
MW05	**Sample Time:** 12:18
	Purge Volume: 5.61 gal **Field pH:** 6.78 (12:26)
	Comments:

Additional Notes:

Groundwater Velocity **Date: 6/27/2018**

V=KI/n V = Groundwater velocity

K = Horizontal hydraulic conductivity (at site: 21.3767 µm/sec = 0.00007013'/sec = 7.013E-05)

I = Horizontal hydraulic gradient = dh/dl = difference in head/horizontal distance between wells)

n = Effective porosity = 0.29 to 0.41 (Sandy Clay) [Use 0.29]

MW1 - MW2:					
dh =	1.087	MW1 =	509	10.583	498.417
dl =	1053.2	MW2 =	502	4.67	497.33
I = dh/dl =	0.001032093				
V = KI/n =	2.49588E-07 ft/sec =	0.076075 µm/sec			
MW1 - MW3:					
dh =	1.917	MW1 =	509	10.583	498.417
dl =	1390	MW3 =	505	8.5	496.5
I = dh/dl =	0.001379137				
V = KI/n =	3.33513E-07 ft/sec =	0.101655 µm/sec			
MW5 - MW4:					
dh =	-0.083	MW5 =	506	10.25	495.75
dl =	326.21	MW4 =	507	11.167	495.833
I = dh/dl =	-0.000254437				
V = KI/n =	-6.153E-08 ft/sec =	-0.01875 µm/sec			
MW5 - MW3:					
dh =	-0.75	MW5 =	506	10.25	495.75
dl =	773.75	MW3 =	505	8.5	496.5
I = dh/dl =	-0.000969305				
V = KI/n =	-2.34405E-07 ft/sec =	-0.07145 µm/sec			

Attachment 2 : Groundwater Velocity Calculation

Attachment 2 : Groundwater Flow Direction Field Notes

6-27-18

W1-MW2-MW3: HG: 0.00651 ft/ft
DOF: 144.59° clockwise from True North

W1-MW2-MW4: HG: 0.00415 ft/ft
DOF: 166.69° clockwise from True North

W1-MW2-MW5: HG: 0.00339 ft/ft
DOF: 189.74° clockwise from True North

W1-MW3-MW4: HG: 0.00180 ft/ft
DOF: 289.89° clockwise from True North

W1-MW3-MW5: HG: 0.00131 ft/ft
DOF: 277.89° clockwise from True North

W1-MW4-MW5: HG: 0.0014 ft/ft
DOF: 277.21° clockwise from True North

W2-MW3-MW4: HG: 0.00645 ft/ft
DOF: 43.74° clockwise from True North

W2-MW3-MW5: HG: 0.00571 ft/ft
DOF: 41.29° clockwise from True North

W2-MW4-MW5: HG: 0.00851 ft/ft
DOF: 37.62° clockwise from True North

W3-MW4-MW5: HG: 0.00353 ft/ft
DOF: 35.18° clockwise from True North

Accurate Environmental Laboratories

July 17, 2018

Client: OG&E - Muskogee

5501 Three Forks Road

Fort Gibson, OK 74434

Requested By: -

National Environmental Laboratory Accreditation Program
Kansas CERT # E-10219

Sample Project Name:	CCR Groundwater Monitoring
Date Samples Received:	June 28, 2018 Time: 9:50 sample temp upon arrival at lab = 1°C - On Ice
Matrix:	Ground Water
Lab Log Numbers:	AF28033-01 AF28033-02 AF28033-03 AF28033-04 AF28033-05 AF28033-06 AF28033-07
Work Order:	AF28033
Report #	AF28033-0717180856
EPA Lab ID#'s:	Stillwater OK00092 Tulsa OK00983 OKC OK00129 ICR OK 001
Oklahoma Certification:	Stillwater WasteWater, DEQ 8316/ Drinking Water, DEQ D9602 Tulsa WasteWater, DEQ 9905 / Drinking Water, DEQ D9901 Oklahoma City WasteWater DEQ 7202 / Drinking Water, DEQ D9937
Kansas Certification:	Stillwater NELAP CERT # E-10219 Oklahoma City NELAP CERT # E-10414
New Hampshire Cert.:	Oklahoma City Drinking Water NH ELAP Lab ID # 2072
Texas Certification:	Stillwater Drinking Water NELAP CERT # T105704533-14-1
Method Reference:	40 CFR 136, 141, and 261 Methods for Chemical Analysis of Water and Wastes EPA-600/4-79-020, March 1983. Test Methods for Evaluating Solid Wastes, SW-846, Final Update III. Standard Methods 1998 (20th Edition), Standard Methods 2005 (21st Edition) and Standard Methods 2011 (22nd Edition) for the Examination of Water and Wastewater.
Analysis Reference:	If qualifiers present in "Prep Info" or "Analysis Info", then analysis performed as follows: @= Tulsa Lab and * = OKC Lab. If no qualifiers present, then analysis performed at Stillwater Lab.

Accurate Environmental Laboratories certify that the test results performed at the Stillwater lab meet all requirements of NELAP. Any exceptions to this can be found in the report footer or Quality Control Section of the report.

This report is to only be replicated in its entirety.

Accurate Enviornmental sampling protocol was followed for any sampling performed by Accurate Field Services.

Sample: *MW-1 MK-126610* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 6/27/18 10:30 **Lab Log#** AF28033-01

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	0.715 mg/L		0.500	06/29/18 10:20 BM	06/29/18 18:35 BM
Fluoride EPA 300.0	Fluoride	0.24 mg/L		0.10	06/29/18 10:20 BM	06/29/18 18:35 BM
Sulfate EPA 300.0	Sulfate	8.98 mg/L		0.500	06/29/18 10:20 BM	06/29/18 18:35 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	397.0 mg/L		25.0	06/29/18 15:46 ZS	07/02/18 16:27 ZS
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	06/29/18 16:00 RW	07/03/18 22:48 PD
Arsenic (As) EPA 200.8	Arsenic	0.0007 mg/L		0.0005	06/29/18 16:00 RW	07/03/18 22:48 PD
Barium (Ba) EPA 200.8	Barium	0.154 mg/L		0.005	06/29/18 16:00 RW	07/03/18 22:48 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	06/29/18 16:00 RW	07/05/18 19:35 PD
Boron (B) EPA 200.8	Boron	0.076 mg/L		0.025	06/29/18 16:00 RW	07/09/18 12:28 LF
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	06/29/18 16:00 RW	07/03/18 22:48 PD
Calcium (Ca) EPA 200.7	Calcium	109 mg/L		0.10	06/29/18 16:00 RW	07/03/18 16:03 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	06/29/18 16:00 RW	07/03/18 22:48 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	06/29/18 16:00 RW	07/03/18 22:48 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	06/29/18 16:00 RW	07/03/18 22:48 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	07/02/18 16:20 RW	07/13/18 15:12 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	07/03/18 08:45 RW	07/05/18 11:42 RW
Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL mg/L		0.005	06/29/18 16:00 RW	07/03/18 22:48 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	06/29/18 16:00 RW	07/03/18 22:48 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	06/29/18 16:00 RW	07/03/18 22:48 PD

Sample: *MW-2 MK-126611* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 6/27/18 11:00 **Lab Log#** AF28033-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	40.1 mg/L		5.00	06/29/18 10:20 BM	06/29/18 20:20 BM
Fluoride EPA 300.0	Fluoride	0.25 mg/L		0.10	06/29/18 10:20 BM	06/29/18 19:59 BM
Sulfate EPA 300.0	Sulfate	106 mg/L		5.00	06/29/18 10:20 BM	06/29/18 20:20 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	603.0 mg/L		25.0	06/29/18 15:46 ZS	07/02/18 16:27 ZS
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	06/29/18 16:00 RW	07/03/18 22:53 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	06/29/18 16:00 RW	07/03/18 22:53 PD
Barium (Ba) EPA 200.8	Barium	0.253 mg/L		0.005	06/29/18 16:00 RW	07/03/18 22:53 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	06/29/18 16:00 RW	07/05/18 19:40 PD
Boron (B) EPA 200.8	Boron	0.225 mg/L		0.025	06/29/18 16:00 RW	07/09/18 12:33 LF
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	06/29/18 16:00 RW	07/03/18 22:53 PD
Calcium (Ca) EPA 200.7	Calcium	132 mg/L		0.50	06/29/18 16:00 RW	07/03/18 16:57 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	06/29/18 16:00 RW	07/03/18 22:53 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	06/29/18 16:00 RW	07/03/18 22:53 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	06/29/18 16:00 RW	07/03/18 22:53 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	07/02/18 16:20 RW	07/13/18 15:16 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	07/03/18 08:45 RW	07/05/18 11:45 RW

Sample: **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 6/27/18 11:00 **Lab Log#** AF28033-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL mg/L		0.005	06/29/18 16:00 RW	07/03/18 22:53 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	06/29/18 16:00 RW	07/03/18 22:53 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	06/29/18 16:00 RW	07/03/18 22:53 PD

Sample: *MW-3 MK-126612* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 6/27/18 11:25 **Lab Log#** AF28033-03

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	169 mg/L		12.5	06/29/18 10:20 BM	06/29/18 21:02 BM
Fluoride EPA 300.0	Fluoride	0.18 mg/L		0.10	06/29/18 10:20 BM	06/29/18 20:41 BM
Sulfate EPA 300.0	Sulfate	196 mg/L		12.5	06/29/18 10:20 BM	06/29/18 21:02 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	1155 mg/L		25.0	06/29/18 15:46 ZS	07/02/18 16:27 ZS
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	06/29/18 16:00 RW	07/03/18 22:59 PD
Arsenic (As) EPA 200.8	Arsenic	0.0009 mg/L		0.0005	06/29/18 16:00 RW	07/03/18 22:59 PD
Barium (Ba) EPA 200.8	Barium	0.289 mg/L		0.005	06/29/18 16:00 RW	07/03/18 22:59 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	06/29/18 16:00 RW	07/05/18 19:46 PD
Boron (B) EPA 200.8	Boron	0.061 mg/L		0.025	06/29/18 16:00 RW	07/09/18 12:39 LF
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	06/29/18 16:00 RW	07/03/18 22:59 PD
Calcium (Ca) EPA 200.7	Calcium	242 mg/L		0.50	06/29/18 16:00 RW	07/03/18 17:00 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	06/29/18 16:00 RW	07/03/18 22:59 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	06/29/18 16:00 RW	07/03/18 22:59 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	06/29/18 16:00 RW	07/03/18 22:59 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	07/02/18 16:20 RW	07/13/18 15:20 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	07/03/18 08:45 RW	07/03/18 11:48 RW
Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL mg/L		0.005	06/29/18 16:00 RW	07/03/18 22:59 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	06/29/18 16:00 RW	07/03/18 22:59 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	06/29/18 16:00 RW	07/03/18 22:59 PD

Sample: *MW-4 MK-126613* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 6/27/18 11:55 **Lab Log#** AF28033-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	141 mg/L		25.0	06/29/18 10:20 BM	06/29/18 21:44 BM
Fluoride EPA 300.0	Fluoride	0.18 mg/L		0.10	06/29/18 10:20 BM	06/29/18 21:23 BM
Sulfate EPA 300.0	Sulfate	357 mg/L		25.0	06/29/18 10:20 BM	06/29/18 21:44 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	1535 mg/L		25.0	06/29/18 15:46 ZS	07/02/18 16:27 ZS
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	06/29/18 16:00 RW	07/03/18 23:04 PD
Arsenic (As) EPA 200.8	Arsenic	0.0008 mg/L		0.0005	06/29/18 16:00 RW	07/03/18 23:04 PD
Barium (Ba) EPA 200.8	Barium	0.231 mg/L		0.005	06/29/18 16:00 RW	07/03/18 23:04 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	06/29/18 16:00 RW	07/05/18 19:51 PD
Boron (B) EPA 200.8	Boron	0.063 mg/L		0.025	06/29/18 16:00 RW	07/09/18 12:44 LF
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	06/29/18 16:00 RW	07/03/18 23:04 PD

Sample: Location Code: PWSID#:

Collection Type: Grab Sample Time: 6/27/18 11:55 Lab Log# AF28033-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Calcium (Ca) EPA 200.7	Calcium	336 mg/L		0.50	06/29/18 16:00 RW	07/03/18 17:03 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	06/29/18 16:00 RW	07/03/18 23:04 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	06/29/18 16:00 RW	07/03/18 23:04 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	06/29/18 16:00 RW	07/03/18 23:04 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	07/02/18 16:20 RW	07/13/18 15:25 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	07/03/18 08:45 RW	07/05/18 11:51 RW
Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL mg/L		0.005	06/29/18 16:00 RW	07/03/18 23:04 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	06/29/18 16:00 RW	07/03/18 23:04 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	06/29/18 16:00 RW	07/03/18 23:04 PD

Sample: *MW-5 MK-126614* Location Code: PWSID#:

Collection Type: Grab Sample Time: 6/27/18 12:18 Lab Log# AF28033-05

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	24.6 mg/L		12.5	06/29/18 10:20 BM	06/29/18 22:26 BM
Fluoride EPA 300.0	Fluoride	0.16 mg/L		0.10	06/29/18 10:20 BM	06/29/18 22:05 BM
Sulfate EPA 300.0	Sulfate	148 mg/L		12.5	06/29/18 10:20 BM	06/29/18 22:26 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	877.0 mg/L		25.0	06/29/18 15:46 ZS	07/02/18 16:27 ZS
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	06/29/18 16:00 RW	07/03/18 23:10 PD
Arsenic (As) EPA 200.8	Arsenic	0.0005 mg/L		0.0005	06/29/18 16:00 RW	07/03/18 23:10 PD
Barium (Ba) EPA 200.8	Barium	0.176 mg/L		0.005	06/29/18 16:00 RW	07/03/18 23:10 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	06/29/18 16:00 RW	07/05/18 19:57 PD
Boron (B) EPA 200.8	Boron	0.279 mg/L		0.025	06/29/18 16:00 RW	07/09/18 12:50 LF
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	06/29/18 16:00 RW	07/03/18 23:10 PD
Calcium (Ca) EPA 200.7	Calcium	207 mg/L		0.50	06/29/18 16:00 RW	07/03/18 17:06 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	06/29/18 16:00 RW	07/03/18 23:10 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	06/29/18 16:00 RW	07/03/18 23:10 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	06/29/18 16:00 RW	07/03/18 23:10 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	07/02/18 16:20 RW	07/13/18 15:29 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	07/03/18 08:45 RW	07/05/18 11:54 RW
Molybdenum (Mo) EPA 200.8	Molybdenum	0.005 mg/L		0.005	06/29/18 16:00 RW	07/03/18 23:10 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	06/29/18 16:00 RW	07/03/18 23:10 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	06/29/18 16:00 RW	07/03/18 23:10 PD

Sample: *MW-3 DUP MK-126615* Location Code: PWSID#:

Collection Type: Grab Sample Time: 6/27/18 11:25 Lab Log# AF28033-06

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	167 mg/L		12.5	06/29/18 10:20 BM	06/29/18 23:09 BM
Fluoride EPA 300.0	Fluoride	0.18 mg/L		0.10	06/29/18 10:20 BM	06/29/18 22:48 BM
Sulfate EPA 300.0	Sulfate	195 mg/L		12.5	06/29/18 10:20 BM	06/29/18 23:09 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	1157 mg/L		25.0	06/29/18 15:46 ZS	07/02/18 16:27 ZS

Sample: **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 6/27/18 11:25 Lab Log# AF28033-06

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	06/29/18 16:00 RW	07/03/18 23:15 PD
Arsenic (As) EPA 200.8	Arsenic	0.0012 mg/L		0.0005	06/29/18 16:00 RW	07/03/18 23:15 PD
Barium (Ba) EPA 200.8	Barium	0.310 mg/L		0.005	06/29/18 16:00 RW	07/03/18 23:15 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	06/29/18 16:00 RW	07/05/18 20:02 PD
Boron (B) EPA 200.8	Boron	0.071 mg/L		0.025	06/29/18 16:00 RW	07/09/18 12:55 LF
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	06/29/18 16:00 RW	07/03/18 23:15 PD
Calcium (Ca) EPA 200.7	Calcium	238 mg/L		0.50	06/29/18 16:00 RW	07/03/18 17:18 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	06/29/18 16:00 RW	07/03/18 23:15 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	06/29/18 16:00 RW	07/03/18 23:15 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	06/29/18 16:00 RW	07/03/18 23:15 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	07/02/18 16:20 RW	07/13/18 15:33 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	07/03/18 08:45 RW	07/05/18 11:57 RW
Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL mg/L		0.005	06/29/18 16:00 RW	07/03/18 23:15 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	06/29/18 16:00 RW	07/03/18 23:15 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	06/29/18 16:00 RW	07/03/18 23:15 PD

Sample: *Blank Water MK-126616* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 6/27/18 12:42 Lab Log# AF28033-07

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	BPQL mg/L		0.500	06/29/18 10:20 BM	06/30/18 00:33 BM
Fluoride EPA 300.0	Fluoride	BPQL mg/L		0.10	06/29/18 10:20 BM	07/04/18 10:20 BM
Sulfate EPA 300.0	Sulfate	BPQL mg/L		0.500	06/29/18 10:20 BM	06/30/18 00:33 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	BPQL mg/L		25.0	06/29/18 15:46 ZS	07/02/18 16:27 ZS
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	06/29/18 16:00 RW	07/03/18 23:37 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	06/29/18 16:00 RW	07/03/18 23:37 PD
Barium (Ba) EPA 200.8	Barium	BPQL mg/L		0.005	06/29/18 16:00 RW	07/03/18 23:37 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	06/29/18 16:00 RW	07/05/18 20:08 PD
Boron (B) EPA 200.8	Boron	0.035 mg/L		0.025	06/29/18 16:00 RW	07/09/18 13:01 LF
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	06/29/18 16:00 RW	07/03/18 23:37 PD
Calcium (Ca) EPA 200.7	Calcium	BPQL mg/L		0.10	06/29/18 16:00 RW	07/03/18 16:20 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	06/29/18 16:00 RW	07/03/18 23:37 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	06/29/18 16:00 RW	07/03/18 23:37 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	06/29/18 16:00 RW	07/03/18 23:37 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	07/02/18 16:20 RW	07/13/18 15:51 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	07/03/18 08:45 RW	07/05/18 12:00 RW
Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL mg/L		0.005	06/29/18 16:00 RW	07/03/18 23:37 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	06/29/18 16:00 RW	07/03/18 23:37 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	06/29/18 16:00 RW	07/03/18 23:37 PD

Notes and Definitions

#52	Analyte recoveries are outside of acceptance limits for the matrix spike sample. This failure does not invalidate data reported.
MCL	Analyte concentration may exceed Maximum Contaminant Limit (MCL) for EPA Primary or Secondary Drinking Water Regulations.
###	Analyte concentration may exceed regulatory limit.
PQL	Practical Quantitation Limit - the method reporting limit (MRL) adjusted for any dilutions or other changes made to the sample to deal with interferences/matrix effects
BPQL	Below Practical Quantitation Limit (if applicable).

The "Prep Date" of the QC analysis coincides with the characters of the appropriate QC Lab ID. (Example: 19 A 02 15 - BLK = 2019, Jan 2, Batch #15 - Blank)

Lab Manager

Quality Control Data

Blank Data

QC Lab #	Test Group	Test	Result	PQL	Flags
18F2906-BLK1	Chloride EPA 300.0	Chloride	BPQL mg/L	0.500	
18F2906-BLK1	Fluoride EPA 300.0	Fluoride	BPQL mg/L	0.10	
18F2906-BLK1	Sulfate EPA 300.0	Sulfate	BPQL mg/L	0.500	
18F2961-BLK1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	BPQL mg/L	25.0	
18F2958-BLK1	Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L	0.005	
18F2958-BLK1	Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L	0.0005	
18F2958-BLK1	Barium (Ba) EPA 200.8	Barium	BPQL mg/L	0.005	
18F2958-BLK1	Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L	0.001	
18F2958-BLK1	Boron (B) EPA 200.8	Boron	BPQL mg/L	0.025	
18F2958-BLK1	Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L	0.0010	
18F2954-BLK1	Calcium (Ca) EPA 200.7	Calcium	BPQL mg/L	0.10	
18F2958-BLK1	Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L	0.010	
18F2958-BLK1	Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L	0.010	
18F2958-BLK1	Lead (Pb) EPA 200.8	Lead	BPQL mg/L	0.0005	
18G0250-BLK1	Lithium (Li) EPA 6020A	Lithium	BPQL mg/L	0.050	
18G0338-BLK1	Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L	0.050	
18F2958-BLK1	Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL mg/L	0.005	
18F2958-BLK1	Selenium (Se) EPA 200.8	Selenium	BPQL mg/L	0.0040	
18F2958-BLK1	Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L	0.0005	

Laboratory Control Sample Data

Lab QC#	Test Group	Test Name	LCS Result	Spike Level	Units	% Rec.	Control Limits	Flags
18F2906-BS1	Chloride EPA 300.0	Chloride	2.90	3.000	mg/L	97	90 - 110	
18F2906-BS1	Fluoride EPA 300.0	Fluoride	1.90	2.000	mg/L	95	90 - 110	
18F2906-BS1	Sulfate EPA 300.0	Sulfate	15.3	15.00	mg/L	102	90 - 110	
18F2961-BS1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	998.0	1000	mg/L	100	80 - 120	
18F2954-BS1	Calcium (Ca) EPA 200.7	Calcium	2.11	2.000	mg/L	106	85 - 115	
18F2958-BS1	Antimony (Sb) EPA 200.8	Antimony	0.101	0.1000	mg/L	101	85 - 115	
18F2958-BS1	Arsenic (As) EPA 200.8	Arsenic	0.0950	0.1000	mg/L	95	85 - 115	
18F2958-BS1	Barium (Ba) EPA 200.8	Barium	0.102	0.1000	mg/L	102	85 - 115	
18F2958-BS1	Beryllium (Be) EPA 200.8	Beryllium	0.094	0.1000	mg/L	94	85 - 115	
18F2958-BS1	Boron (B) EPA 200.8	Boron	0.091	0.1000	mg/L	91	85 - 115	
18F2958-BS1	Cadmium (Cd) EPA 200.8	Cadmium	0.101	0.1000	mg/L	101	85 - 115	
18F2958-BS1	Chromium (Cr) EPA 200.8	Chromium	0.096	0.1000	mg/L	96	85 - 115	
18F2958-BS1	Cobalt (Co) EPA 200.8	Cobalt	0.091	0.1000	mg/L	91	85 - 115	
18F2958-BS1	Lead (Pb) EPA 200.8	Lead	0.0984	0.1000	mg/L	98	85 - 115	
18F2958-BS1	Molybdenum (Mo) EPA 200.8	Molybdenum	0.098	0.1000	mg/L	98	85 - 115	
18F2958-BS1	Selenium (Se) EPA 200.8	Selenium	0.0964	0.1000	mg/L	96	85 - 115	
18F2958-BS1	Thallium (Tl) EPA 200.8	Thallium	0.0973	0.1000	mg/L	97	85 - 115	
18G0250-BS1	Lithium (Li) EPA 6020A	Lithium	1.05	1.000	mg/L	105	85 - 115	
18G0338-BS1	Mercury (Hg) EPA 245.1	Mercury	1.63	1.667	ug/L	98	85 - 115	

Quality Control Data

Matrix Spike Data

QC Lab #	Test Group	Test Name	Source Sample	Sample Result	Units	Spike Result	Spike Level	% Rec.	Acceptance Limits	Flags
18G0250-MS1	Lithium (Li) EPA 6020A	Lithium	AF28033-02	BPQL	mg/L	0.982	1.000	98	85 - 115	
18G0338-MS1	Mercury (Hg) EPA 245.1	Mercury	AF28033-05	BPQL	ug/L	1.50	1.667	90	85 - 115	

Matrix Spike Duplicate Data

QC Lab #	Test Group	Test Name	Sample Result	Spike Result	Spike Level	Units	% Rec.	Rec. Limits	% RPD	RPD Limit	Flags
18G0250-MSD1	Lithium (Li) EPA 6020A	Lithium	BPQL	0.940	1.000	mg/L	94	85-115	4	20	
18G0338-MSD1	Mercury (Hg) EPA 245.1	Mercury	BPQL	1.40	1.667	ug/L	84	85-115	7	20	#52

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

☐ RUSH Due Date

Chain of Custody

Accurate Environmental Labs

Client Name: OG&E Muskogee Power Plant

Project Name: CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix	Grab / Composite	Client Sample ID / Sample Description		Field Results: pH / Temp / Chlorine (note analysis & units)			# of Containers	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals* (see comments)	Radium-226 and 228 combined	Mercury (EPA 245.1)	Fluoride (EPA 300)
										Cool <6°C	Cool <6°C	Cool <6°C HNO3	Cool <6°C	Cool <6°C	Cool <6°C	
AF29033														6-28-18		
-01	6/27/18	1030	GW	G	MW-1	MK-126610				2	X	X	X	X	X	X
-02	6/27/18	1100	GW	G	MW-2	MK-126611				2	X	X	X	X	X	X
-03	6/27/18	1125	GW	G	MW-3	MK-126612				2	X	X	X	X	X	X
-04	6/27/18	1155	GW	G	MW-4	MK-126613				2	X	X	X	X	X	X
-05	6/27/18	1218	GW	G	MW-5	MK-126614				2	X	X	X	X	X	X

On-Site Info: *Raw Alkalinity (TOC Raw)=* _____ *mg/L* *Turbidity (E.Coli)=* _____ *ntu*

Matrix Codes: DW = *Drinkingwater*; WW = *Wastewater*; SL = *Sludge*; O = *Other*

E.Coli Source: GWUDI-FS= *Groundwater under direct influence of Flowing Stream* GWUDI-RL= *Groundwater under direct influence of Reservoir/Lake*

Field Instrument Calibration

Meter Type	Standards	Final Read.	Date , Time	Initials

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

- Hazardous samples will be returned to client or will be disposed of at client expense --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility. **Signature:** _____ **Date/Time** 6-28-18 0750

Sampled By: Michael Jordan **Company:** Oklahoma Gas & Electric **Sample Method:** Grab

Relinquished By:	Date/Time	Received By:	Date/Time
☐ Relinquished to Lab By:			
☐ Relin'd to Lee-In Pridex By:	Date/Time 6-28-18 0950	Received at Lab By:	Rec'd @ 1.4°C Date/Time 6-28-18 0950

Reporting Requirements (standard 10-15 working days): _____ **Compliance Reporting?** Yes or No (DMR, PWS,) **Oklahoma PWS ID #** _ _ _ _ _ _ _ _ _ **RUSH Request (if available)** _____ (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079 **Fax #:** (405) 553-4063

Email:

Mail Invoice To: Email invoice to:

Address: APVendorInvoices@oge.com

Bid # -

PO # -

Phone #: (553-4079) **Fax #:** (405) 553-4063

www.accuratelabs.com (800) 516-5227

505 South Lowry Street, Stillwater, OK 74074 Phone: (405) 372-5300 Fax: (405) 372-5396

6558 E. 40th Street, Tulsa, OK 74074 Phone: (918) 663-5400 Fax: (918) 663-6300

12036 N. Pennsylvania, Oklahoma City, OK 73120 Phone: (405) 751-3132 Fax: (405) 751-3108

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

☐ RUSH Due Date

Chain of Custody

Accurate Environmental Labs

Client Name: OG&E Muskogee Power Plant

Project Name: CCR Groundwater Monitoring

Accutest Job# / Bottle Order Control # AEZ8803	Date Sample Taken	Time Sample Taken	Matrix (GW, SW, Soil, Sed, Liquid, Air)	Comp (C) or Grab (G)	Client ID / Sample Location / LOCATION CODE	Field Results (pH, Temp, Chlorine, Turbidity, note analysis & units)	Sample Preservation & # of Containers	Cool <4°C	Cool <4°C	Cool <4°C HNO3	Cool <4°C	Cool <4°C	Cool <4°C
							Analysis Requested	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals* (see comments)	Radium-226 and 228 combined	Mercury (EPA 245.1)	Fluoride (EPA 300)
-06	6/27/18	1125	GW	G	MW-3 DUP MK-12615		3 2	X	X	X	X	X	X
-07	6/27/18	1242	GW	G	Blank Water MK-12616		3 2	X	X	X	X	X	X

On-Site Info: *Raw Alkalinity (TOC Raw)=* _____ *mg/L* *Turbidity (E.Coli)=* _____ *ntu*

Matrix Codes DW = *Drinking water*; WW = *Wastewater*; SL = *Sludge*; O = *Other*

E.Coli Source GWUDI-ES= *Groundwater under direct influence of Flowing Stream* GWUDI-RL= *Groundwater under direct influence of Reservoir/Lake*

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

Field Instrument Calibration

Meter Type	Standards	Final Read.	Date, Time	Initials

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

-- Hazardous samples will be returned to client or will be disposed of at a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility. Signature: _____ Date/Time: 6-28-18 0752

Sampled By: Michael Jordan Company: Oklahoma Gas & Electric Sample Method: Grab

Relinquished By:	Date/Time	Received By:	Date/Time
☐ Relinquished to Lab By:			
☐ Rel'd to Log-In Prior By:	Date/Time 6-28-18 0752	Received at Lab By:	Rec'd °C: 1.4 Date/Time 6-28-18 0750

Reporting Requirements (standard 10-15 working days)

Compliance Reporting? Yes or No (DMR, PWS,)

Oklahoma PWS ID # _ _ _ _ _ _ _ _

RUSH Request (if available): _____ (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

Mail Invoice To: Email invoice to:

Address: APVendorInvoices@oge.com

Bid # -

PO # -

Phone #: (553-4079) Fax #: (405) 553-4063

www.accuratelabs.com (800) 516-5227

505 South Lowry Street, Stillwater, OK 74074 Phone: (405) 372-5300 Fax: (405) 372-5396

6558 E. 40th Street, Tulsa, OK 74074 Phone: (918) 663-5400 Fax: (918) 663-6300

12036 N. Pennsylvania, Oklahoma City, OK 73120 Phone: (405) 751-3132 Fax: (405) 751-3108

Accurate Environmental Laboratories

July 20, 2018

Client: OG&E - Muskogee

5501 Three Forks Road

Fort Gibson, OK 74434

Requested By: Chuck Smithson

National Environmental Laboratory Accreditation Program Kansas CERT # E-10219

Sample Project Name:	CCR Groundwater Monitoring
Date Samples Received:	June 28, 2018 Time: 9:50 sample temp upon arrival at lab = 1°C - On Ice
Matrix:	Ground Water
Lab Log Numbers:	**AF28042-01 AF28042-02 AF28042-03 AF28042-04 AF28042-05 AF28042-06 AF28042-07**
Work Order:	AF28042
Report #	AF28042-0720181629
EPA Lab ID#'s:	**Stillwater OK00092 Tulsa OK00983 OKC OK00129 ICR OK 001**
Oklahoma Certification:	Stillwater WasteWater, DEQ 8316/ Drinking Water, DEQ D9602 Tulsa WasteWater, DEQ 9905 / Drinking Water, DEQ D9901 Oklahoma City WasteWater DEQ 7202 / Drinking Water, DEQ D9937
Kansas Certification:	Stillwater NELAP CERT # E-10219 Oklahoma City NELAP CERT # E-10414
New Hampshire Cert.:	Oklahoma City Drinking Water NH ELAP Lab ID # 2072
Texas Certification:	Stillwater Drinking Water NELAP CERT # T105704533-14-1
Method Reference:	40 CFR 136, 141, and 261 Methods for Chemical Analysis of Water and Wastes EPA-600/4-79-020, March 1983. Test Methods for Evaluating Solid Wastes, SW-846, Final Update III. Standard Methods 1998 (20th Edition), Standard Methods 2005 (21st Edition) and Standard Methods 2011 (22nd Edition) for the Examination of Water and Wastewater.
Analysis Reference:	If qualifiers present in "Prep Info" or "Analysis Info", then analysis performed as follows: @= Tulsa Lab and * = OKC Lab. If no qualifiers present, then analysis performed at Stillwater Lab. Accurate Environmental Laboratories certify that the test results performed at the Stillwater lab meet all requirements of NELAP. Any exceptions to this can be found in the report footer or Quality Control Section of the report. This report is to only be replicated in its entirety. Accurate Enviommental sampling protocol was followed for any sampling performed by Accurate Field Services.

Sample: *MW-1 MK-126610* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 6/27/18 10:30 **Lab Log#** AF28042-01

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.477	07/03/18 16:00	07/06/18 11:49
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.349 pCi/L			07/03/18 16:00	07/06/18 11:49
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.541	07/12/18 14:58	07/15/18 22:33
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.443 pCi/L			07/12/18 14:58	07/15/18 22:33

Sample: *MW-2 MK-126611* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 6/27/18 11:00 **Lab Log#** AF28042-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.553	07/03/18 16:00	07/06/18 11:49
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.433 pCi/L			07/03/18 16:00	07/06/18 11:49
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.534	07/12/18 14:58	07/15/18 23:03
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.489 pCi/L			07/12/18 14:58	07/15/18 23:03

Sample: *MW-3 MK-126612* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 6/27/18 11:25 **Lab Log#** AF28042-03

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	0.878 pCi/L		0.565	07/03/18 16:00	07/06/18 11:49
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.432 pCi/L			07/03/18 16:00	07/06/18 11:49
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.546	07/12/18 14:58	07/15/18 23:33
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.613 pCi/L			07/12/18 14:58	07/15/18 23:33

Sample: *MW-4 MK-126613* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 6/27/18 11:55 **Lab Log#** AF28042-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.590	07/03/18 16:00	07/06/18 11:49
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.438 pCi/L			07/03/18 16:00	07/06/18 11:49
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.553	07/12/18 14:58	07/16/18 00:03
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.532 pCi/L			07/12/18 14:58	07/16/18 00:03

Sample: *MW-5 MK-126614* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 6/27/18 12:18 **Lab Log#** AF28042-05

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.594	07/03/18 16:00	07/06/18 11:49
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.378 pCi/L			07/03/18 16:00	07/06/18 11:49
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.591	07/12/18 14:58	07/16/18 00:34
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.514 pCi/L			07/12/18 14:58	07/16/18 00:34

Sample: *MW-3 DUP MK-126615* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 6/27/18 11:25 **Lab Log#** AF28042-06

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	0.884 pCi/L		0.699	07/03/18 16:00	07/06/18 11:49
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.464 pCi/L			07/03/18 16:00	07/06/18 11:49
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.547	07/12/18 14:58	07/16/18 01:04
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.549 pCi/L			07/12/18 14:58	07/16/18 01:04

Sample: *Blank Water MK-126616* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 6/27/18 12:42 **Lab Log#** AF28042-07

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.855	07/03/18 16:00	07/05/18 11:40
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.550 pCi/L			07/03/18 16:00	07/05/18 11:40
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.615	07/12/18 14:58	07/16/18 01:34
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.504 pCi/L			07/12/18 14:58	07/16/18 01:34

Notes and Definitions

***Alpha, Beta and Radium analysis performed under NELAC certification NJ OK001 and OK 9517.

MCL	Analyte concentration may exceed Maximum Contaminant Limit (MCL) for EPA Primary or Secondary Drinking Water Regulations.
###	Analyte concentration may exceed regulatory limit.
PQL	Practical Quantitation Limit - the method reporting limit (MRL) adjusted for any dilutions or other changes made to the sample to deal with interferences/matrix effects
BPQL	Below Practical Quantitation Limit (if applicable).

The "Prep Date" of the QC analysis coincides with the characters of the appropriate QC Lab ID. (Example: 19 A 02 15 - BLK = 2019, Jan 2, Batch #15 - Blank)

Lab Manager

Quality Control Data

Blank Data

QC Lab #	Test Group	Test	Result	PQL	Flags
18G2055-BLK1	Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L	0.714	
18G2056-BLK1	Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L	0.126	

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

☐ RUSH Due Date

Chain of Custody

Accurate Environmental Labs

Client Name: OG&E Muskogee Power Plant

Project Name: CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix or Source (Drink., Waste)	Grab (G) or Comp (C)	Client I.D. / Sample Location or DEQ / EPA Location Code	Field Results (pH, Temp, Chlorine,) (note analysis limits)	# of Containers	Boron-Calcium, Chloride, Fluoride, Sulfate	TDS	Metals* (see comments)	Radium 226 and 228 combined	Mercury (EPA 245.1)	Fluoride (EPA 300)
AF28042								Cool <4°C	Cool <4°C	Cool <4°C HNO3	Cool <4°C	Cool <4°C	Cool <4°C
-01	6/27/18	1030	GW	G	MW-1 MK- 126610		1 3 2	X	X	X	X	X	X
-02	6/27/18	1100	GW	G	MW-2 MK- 126611		1 3 2	X	X	X	X	X	X
-03	6/27/18	1125	GW	G	MW-3 MK- 126612		1 3 2	X	X	X	X	X	X
-04	6/27/18	1155	GW	G	MW-4 MK- 126613		1 3 2	X	X	X	X	X	X
-05	6/27/18	128	GW	G	MW-5 MK- 126614		1 3 2	X	X	X	X	X	X

On-Site Info: Raw Alkalinity (TOC Raw)= _____ mg/L Turbidity (E.Coli)= _____ ntu

Matrix Codes: DW = Drinkingwater ; WW = Wastewater ; SL = Sludge ; O = Other

E.Coli Source: GWUDI-FS= Groundwater under direct influence of Flowing Stream GWUDI-RL= Groundwater under direct influence of Reservoir/Lake

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

Field Instrument Calibration

Meter Type	Standards	Final Read.	Date, Time	Initials

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility. Signature: _____ Date/Time 6-28-18 0758

Sampled By: Michael Jordan Company: Oklahoma Gas & Electric Sample Method: Grab

Relinquished By:	Date/Time	Received By:	Date/Time
☐ Relinquished to Lab By:			
☐ Rel'd to Log-In Prides By:	Date/Time 6-28-18 0950	Received at Lab By:	Rec'd °C 1.4 Date/Time 6-28-18 0950

Reporting Requirements (standard 10 working days): Compliance Reporting? Yes or No (DMR, PWS,) Oklahoma PWS ID # _____ RUSH Request (if available) _____ (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

Mail Invoice To: Email invoice to:

Address: APVendorInvoices@oge.com

Bid # -

PO # -

Phone #: (553-4079) Fax #: (405) 553-4063

www.accuratelabs.com (800) 516-5227

505 South Lowry Street, Stillwater, OK 74074 Phone: (405) 372-5300 Fax: (405) 372-5396

6558 E. 40th Street, Tulsa, OK 74074 Phone: (918) 663-5400 Fax: (918) 663-6300

12036 N. Pennsylvania, Oklahoma City, OK 73120 Phone: (405) 751-3132 Fax: (405) 751-3108

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

☐ RUSH Due Date

Chain of Custody

Accurate Environmental Labs

Client Name: OG&E Muskogee Power Plant

Project Name: CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix or Source (Note below)	Grab (G) or Comp (C)	Client I.D. / Sample Location or DEQ / EPA Location Code	Field Results (pH, Temp, Chlorine,) (note analysis & units)			Sample Preserv. & Container →	Cool <4°C	Cool <4°C	Cool <4°C HNO3	Cool <4°C	Cool <4°C	Cool <4°C
									Analysis Requested →	Boron, Calcium, Chloride, Fluoride, Sulfate	#38	Metals* (see comments)	Radium 226 and 228 combined	Mercury (EPA 245.1)	Fluoride (EPA 300)
AF28042									# of Containers		pg 1 of 2				
-06	6/27/18	1125	GW	G	MW-3 DUP MK-126615				1 ~~3~~ 2	X	X	X	X	X	X
-07	6/27/18	1242	GW	G	Blank Water MK-126616				1 ~~3~~ 2	X	X	X	X	X	X

On-Site Info: *Raw Alkalinity (TOC Raw)=* _____ *mg/L* *Turbidity (E.Coli)=* _____ *ntu*

Matrix Codes DW = *Drinkingwater*; WW = *Wastewater*; SL = *Sludge*; O = *Other* _____

E.Coli Source GWUDI-VS= *Groundwater under direct influence of Flowing Stream* GWUDI-RL= *Groundwater under direct influence of Reservoir/Lake*

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Colbalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

Field Instrument Calibration -

Meter Type	Standards	Final Read.	Date , Time	Initials

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility. Signature: _____ Date/Time 6-28-18 0752

Sampled By: Michael Jordan Company: Oklahoma Gas & Electric Sample Method: Grab

Relinquished By:	Date/Time	Received By:	Date/Time
☐ Relinquished to Lab By:	Date/Time 6-28-18 0950	Received At Lab By:	Rec'd °C 1.4 Date/Time 6-28-18 0750
☐ Relin'd to Log-In Fridge By:			

Reporting Requirements: (standard 10-15 working days)

Compliance Reporting? Yes or No (DMR, PWS,)

Oklahoma PWS ID # _ _ _ _ _ _ _ _ _

RUSH Request (if available) _____ (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

Mail Invoice To: Email invoice to:

Address: APVendorInvoices@oge.com

Bid # -

PO # -

Phone #: (553-4079) Fax #: (405) 553-4063

www.accuratelabs.com (800) 516-5227

505 South Lowry Street, Stillwater, OK 74074 Phone: (405) 372-5300 Fax: (405) 372-5396

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12036 N. Pennsylvania, Oklahoma City, OK 73120 Phone: (405) 751-3132 Fax: (405) 751-3108

Sampling Log

Sample ID		
	Date: 7-19-2018	
	Weather Conditions and Temperature: Clear	98°
Field Samplers	Names: Jason Chilless, Jerry Blackett, Micheal Jordan	
	Groundwater Level (ft below TOC): 11'6"	TD: 20'4"
MW01	Sample Time: 9:55	
	Purge Volume: 4.6 gal	Field pH: 6.95 (9:41)
	Comments:	
	Groundwater Level (ft below TOC):: 5'8"	TD: 20'
MW02	Sample Time: 9:57	
	Purge Volume: 7.4 gal	Field pH: 6.91 (10:07)
	Comments:	
	Groundwater Level (ft below TOC):: 19'5"	TD: 22'6"
MW03	Sample Time: 10:18	
	Purge Volume: 2 gal	Field pH: 6.79 (10:29)
	Comments:	
	Groundwater Level (ft below TOC):: 12'	TD: 22'5"
MW04	Sample Time: 10:46	
	Purge Volume: 5.4 gal	Field pH: 6.67 (10:50)
	Comments:	
	Groundwater Level (ft below TOC):: 11'3"	TD: 21'7"
MW05	Sample Time: 11:10	
	Purge Volume: 5.1 gal	Field pH: 6.78 (11:17)
	Comments:	

Additional Notes:

Groundwater Velocity **Date: 7/19/2018**

V=KI/n V = Groundwater velocity
K = Horizontal hydraulic conductivity (at site: 21.3767 µm/sec = 0.00007013'/sec = 7.013E-05)
I = Horizontal hydraulic gradient = dh/dl = difference in head/horizontal distance between wells)
n = Effective porosity = 0.29 to 0.41 (Sandy Clay) [Use 0.29]

MW1 - MW2:

dh =	1.17	MW1 =	509	11.5	497.5
dl =	1053.2	MW2 =	502	5.67	496.33
I = dh/dl =	0.0011109				

V = KI/n = 2.68646E-07 ft/sec = 0.081883 µm/sec

MW1 - MW3:

dh =	11.916	MW1 =	509	11.5	497.5
dl =	1390	MW3 =	505	19.416	485.584
I = dh/dl =	0.008572662				

V = KI/n = 2.07311E-06 ft/sec = 0.631883 µm/sec

MW5 - MW4:

dh =	-0.25	MW5 =	506	11.25	494.75
dl =	326.21	MW4 =	507	12	495
I = dh/dl =	-0.000766377				

V = KI/n = -1.85331E-07 ft/sec = -0.05649 µm/sec

MW5 - MW3:

dh =	9.166	MW5 =	506	11.25	494.75
dl =	773.75	MW3 =	505	19.416	485.584
I = dh/dl =	0.011846204				

V = KI/n = 2.86474E-06 ft/sec = 0.873172 µm/sec

Attachment 2 : Groundwater Velocity Calculation

Attachment 2 : Groundwater Flow Direction Field Notes

7-19-19

W1-MW2-MW3: HG: 0.01367 ft/ft
DoF: 280° clockwise from True North

W1-MW2-MW4: HG: 0.00378 ft/ft
DoF: 177.4° clockwise from True North

W1-MW2-MW5: HG: 0.00347 ft/ft
DoF: 190.21° clockwise from True North

W1-MW3-MW4: HG: 0.01839 ft/ft
DoF: 163.99° clockwise from True North

W1-MW3-MW5: HG: 0.01376 ft/ft
DoF: 172.62° clockwise from True North

W1-MW4-MW5: HG: 0.00128 ft/ft
DoF: 251.48° clockwise from True North

W2-MW3-MW4: HG: 0.02383 ft/ft
DoF: 172.55° clockwise from True North

W2-MW3-MW5: HG: 0.0167 ft/ft
DoF: 186.7° clockwise from True North

W2-MW4-MW5: HG: 0.00359 ft/ft
DoF: 34.55° clockwise from True North

W3-MW4-MW5: HG: 0.16937 ft/ft
DoF: 141.22° clockwise from True North

Accurate Environmental Laboratories

July 30, 2018

Client: OG&E - Muskogee

5501 Three Forks Road

Fort Gibson, OK 74434

Requested By: -

National Environmental Laboratory Accreditation Program Kansas CERT # E-10219

Sample Project Name:	CCR Groundwater Monitoring
Date Samples Received:	July 20, 2018 Time: 10:41 sample temp upon arrival at lab = 2°C - On Ice
Matrix:	Ground Water
Lab Log Numbers:	AG20019-01 AG20019-02 AG20019-03 AG20019-04 AG20019-05 AG20019-06 AG20019-07
Work Order:	AG20019
Report #	AG20019-0730180836
EPA Lab ID#'s:	Stillwater OK00092 Tulsa OK00983 OKC OK00129 ICR OK 001
Oklahoma Certification:	Stillwater WasteWater, DEQ 8316/ Drinking Water, DEQ D9602 Tulsa WasteWater, DEQ 9905 / Drinking Water, DEQ D9901 Oklahoma City WasteWater DEQ 7202 / Drinking Water, DEQ D9937
Kansas Certification:	Stillwater NELAP CERT # E-10219 Oklahoma City NELAP CERT # E-10414
New Hampshire Cert.:	Oklahoma City Drinking Water NH ELAP Lab ID # 2072
Texas Certification:	Stillwater Drinking Water NELAP CERT # T105704533-14-1
Method Reference:	40 CFR 136, 141, and 261 Methods for Chemical Analysis of Water and Wastes EPA-600/4-79-020, March 1983. Test Methods for Evaluating Solid Wastes, SW-846, Final Update III. Standard Methods 1998 (20th Edition), Standard Methods 2005 (21st Edition) and Standard Methods 2011 (22nd Edition) for the Examination of Water and Wastewater.
Analysis Reference:	If qualifiers present in "Prep Info" or "Analysis Info", then analysis performed as follows: @= Tulsa Lab and * = OKC Lab. If no qualifiers present, then analysis performed at Stillwater Lab. Accurate Environmental Laboratories certify that the test results performed at the Stillwater lab meet all requirements of NELAP. Any exceptions to this can be found in the report footer or Quality Control Section of the report. This report is to only be replicated in its entirety. Accurate Environmental sampling protocol was followed for any sampling performed by Accurate Field Services.

Sample: *MW-1 MK-126635* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 7/19/18 9:35 **Lab Log#** AG20019-01

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	0.597 mg/L		0.500	07/23/18 12:04 BM	07/23/18 14:02 BM
Fluoride EPA 300.0	Fluoride	0.21 mg/L		0.10	07/23/18 12:04 BM	07/23/18 14:02 BM
Sulfate EPA 300.0	Sulfate	7.13 mg/L		0.500	07/23/18 12:04 BM	07/23/18 14:02 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	369.0 mg/L		25.0	07/23/18 12:37 ZS	07/25/18 10:46 ZS
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	07/24/18 16:00 PD	07/25/18 13:12 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	07/24/18 16:00 PD	07/25/18 13:12 PD
Barium (Ba) EPA 200.8	Barium	0.182 mg/L		0.005	07/24/18 16:00 PD	07/25/18 13:12 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	07/24/18 16:00 PD	07/25/18 13:12 PD
Boron (B) EPA 200.8	Boron	0.077 mg/L		0.025	07/24/18 16:00 PD	07/25/18 13:12 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	07/24/18 16:00 PD	07/25/18 13:12 PD
Calcium (Ca) EPA 200.7	Calcium	110 mg/L		0.50	07/24/18 16:00 PD	07/25/18 17:24 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	07/24/18 16:00 PD	07/25/18 13:12 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	07/24/18 16:00 PD	07/25/18 13:12 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	07/24/18 16:00 PD	07/25/18 13:12 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	07/24/18 16:00 PD	07/25/18 12:53 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	07/25/18 08:45 RW	07/25/18 15:18 RW
Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL mg/L		0.005	07/24/18 16:00 PD	07/25/18 13:12 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	07/24/18 16:00 PD	07/25/18 13:12 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	07/24/18 16:00 PD	07/25/18 13:12 PD

Sample: *MW-2 MK-126636* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 7/19/18 9:57 **Lab Log#** AG20019-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	40.8 mg/L		5.00	07/23/18 12:04 BM	07/23/18 15:11 BM
Fluoride EPA 300.0	Fluoride	0.22 mg/L		0.10	07/23/18 12:04 BM	07/23/18 15:11 BM
Sulfate EPA 300.0	Sulfate	109 mg/L		5.00	07/23/18 12:04 BM	07/23/18 15:11 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	595.0 mg/L		25.0	07/23/18 12:37 ZS	07/25/18 10:46 ZS
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	07/24/18 16:00 PD	07/25/18 13:17 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	07/24/18 16:00 PD	07/25/18 13:17 PD
Barium (Ba) EPA 200.8	Barium	0.250 mg/L		0.005	07/24/18 16:00 PD	07/25/18 13:17 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	07/24/18 16:00 PD	07/25/18 13:17 PD
Boron (B) EPA 200.8	Boron	0.222 mg/L		0.025	07/24/18 16:00 PD	07/25/18 13:17 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	07/24/18 16:00 PD	07/25/18 13:17 PD
Calcium (Ca) EPA 200.7	Calcium	132 mg/L		0.50	07/24/18 16:00 PD	07/25/18 17:27 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	07/24/18 16:00 PD	07/25/18 13:17 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	07/24/18 16:00 PD	07/25/18 13:17 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	07/24/18 16:00 PD	07/25/18 13:17 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	07/24/18 16:00 PD	07/25/18 12:57 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	07/25/18 08:45 RW	07/25/18 15:21 RW

Sample: **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 7/19/18 9:57 **Lab Log#** AG20019-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Molybdenum (Mo) EPA 200.8	Molybdenum	0.005 mg/L		0.005	07/24/18 16:00 PD	07/25/18 13:17 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	07/24/18 16:00 PD	07/25/18 13:17 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	07/24/18 16:00 PD	07/25/18 13:17 PD

Sample: *MW-3 MK-126637* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 7/19/18 10:18 **Lab Log#** AG20019-03

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	174 mg/L		12.5	07/23/18 12:04 BM	07/23/18 15:57 BM
Fluoride EPA 300.0	Fluoride	0.14 mg/L		0.10	07/23/18 12:04 BM	07/23/18 15:34 BM
Sulfate EPA 300.0	Sulfate	200 mg/L		12.5	07/23/18 12:04 BM	07/23/18 15:57 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	1102 mg/L		25.0	07/23/18 12:37 ZS	07/25/18 10:46 ZS
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	07/24/18 16:00 PD	07/25/18 13:22 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	07/24/18 16:00 PD	07/25/18 13:22 PD
Barium (Ba) EPA 200.8	Barium	0.327 mg/L		0.005	07/24/18 16:00 PD	07/25/18 13:22 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	07/24/18 16:00 PD	07/25/18 13:22 PD
Boron (B) EPA 200.8	Boron	0.067 mg/L		0.025	07/24/18 16:00 PD	07/25/18 13:22 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	07/24/18 16:00 PD	07/25/18 13:22 PD
Calcium (Ca) EPA 200.7	Calcium	236 mg/L		0.50	07/24/18 16:00 PD	07/25/18 17:30 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	07/24/18 16:00 PD	07/25/18 13:22 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	07/24/18 16:00 PD	07/25/18 13:22 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	07/24/18 16:00 PD	07/25/18 13:22 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	07/24/18 16:00 PD	07/25/18 13:02 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	07/25/18 08:45 RW	07/25/18 15:25 RW
Molybdenum (Mo) EPA 200.8	Molybdenum	0.006 mg/L		0.005	07/24/18 16:00 PD	07/25/18 13:22 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	07/24/18 16:00 PD	07/25/18 13:22 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	07/24/18 16:00 PD	07/25/18 13:22 PD

Sample: *MW-4 MK-126638* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 7/19/18 10:46 **Lab Log#** AG20019-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	141 mg/L		25.0	07/23/18 12:04 BM	07/23/18 16:43 BM
Fluoride EPA 300.0	Fluoride	0.14 mg/L		0.10	07/25/18 12:04 BM	07/23/18 16:20 BM
Sulfate EPA 300.0	Sulfate	363 mg/L		25.0	07/23/18 12:04 BM	07/23/18 16:43 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	1420 mg/L		25.0	07/23/18 12:37 ZS	07/25/18 10:46 ZS
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	07/24/18 16:00 PD	07/25/18 13:28 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	07/24/18 16:00 PD	07/25/18 13:28 PD
Barium (Ba) EPA 200.8	Barium	0.263 mg/L		0.005	07/24/18 16:00 PD	07/25/18 13:28 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	07/24/18 16:00 PD	07/25/18 13:28 PD
Boron (B) EPA 200.8	Boron	0.062 mg/L		0.025	07/24/18 16:00 PD	07/25/18 13:28 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	07/24/18 16:00 PD	07/25/18 13:28 PD

Sample: **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 7/19/18 10:46 Lab Log# AG20019-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Calcium (Ca) EPA 200.7	Calcium	345 mg/L		0.50	07/24/18 16:00 PD	07/25/18 17:32 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	07/24/18 16:00 PD	07/25/18 13:28 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	07/24/18 16:00 PD	07/25/18 13:28 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	07/24/18 16:00 PD	07/25/18 13:28 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	07/24/18 16:00 PD	07/25/18 13:06 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	07/25/18 08:45 RW	07/25/18 15:28 RW
Molybdenum (Mo) EPA 200.8	Molybdenum	0.006 mg/L		0.005	07/24/18 16:00 PD	07/25/18 13:28 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	07/24/18 16:00 PD	07/25/18 13:28 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	07/24/18 16:00 PD	07/25/18 13:28 PD

Sample: *MW-5 MK-126639* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 7/19/18 11:10 Lab Log# AG20019-05

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	23.8 mg/L		12.5	07/23/18 12:04 BM	07/23/18 17:29 BM
Fluoride EPA 300.0	Fluoride	0.12 mg/L		0.10	07/23/18 12:04 BM	07/23/18 17:06 BM
Sulfate EPA 300.0	Sulfate	147 mg/L		12.5	07/23/18 12:04 BM	07/23/18 17:29 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	839.0 mg/L		25.0	07/23/18 12:37 ZS	07/25/18 10:46 ZS
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	07/24/18 16:00 PD	07/25/18 13:49 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	07/24/18 16:00 PD	07/25/18 13:49 PD
Barium (Ba) EPA 200.8	Barium	0.153 mg/L		0.005	07/24/18 16:00 PD	07/25/18 13:49 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	07/24/18 16:00 PD	07/25/18 13:49 PD
Boron (B) EPA 200.8	Boron	0.252 mg/L		0.025	07/24/18 16:00 PD	07/25/18 13:49 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	07/24/18 16:00 PD	07/25/18 13:49 PD
Calcium (Ca) EPA 200.7	Calcium	203 mg/L		0.50	07/24/18 16:00 PD	07/25/18 17:35 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	07/24/18 16:00 PD	07/25/18 13:49 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	07/24/18 16:00 PD	07/25/18 13:49 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	07/24/18 16:00 PD	07/25/18 13:49 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	07/24/18 16:00 PD	07/25/18 13:10 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	07/25/18 08:45 RW	07/25/18 15:31 RW
Molybdenum (Mo) EPA 200.8	Molybdenum	0.005 mg/L		0.005	07/24/18 16:00 PD	07/25/18 13:49 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	07/24/18 16:00 PD	07/25/18 13:49 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	07/24/18 16:00 PD	07/25/18 13:49 PD

Sample: *MW-4 DUP MK-126640* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 7/19/18 10:46 Lab Log# AG20019-06

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	148 mg/L		25.0	07/23/18 12:04 BM	07/23/18 19:01 BM
Fluoride EPA 300.0	Fluoride	0.14 mg/L		0.10	07/23/18 12:04 BM	07/23/18 18:38 BM
Sulfate EPA 300.0	Sulfate	356 mg/L		25.0	07/23/18 12:04 BM	07/23/18 19:01 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	1430 mg/L		25.0	07/23/18 12:37 ZS	07/25/18 10:46 ZS

Sample: Location Code: PWSID#:

Collection Type: Grab Sample Time: 7/19/18 10:46 Lab Log# AG20019-06

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	07/24/18 16:00 PD	07/25/18 13:55 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	07/24/18 16:00 PD	07/25/18 13:55 PD
Barium (Ba) EPA 200.8	Barium	0.248 mg/L		0.005	07/24/18 16:00 PD	07/25/18 13:55 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	07/24/18 16:00 PD	07/25/18 13:55 PD
Boron (B) EPA 200.8	Boron	0.066 mg/L		0.025	07/24/18 16:00 PD	07/25/18 13:55 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	07/24/18 16:00 PD	07/25/18 13:55 PD
Calcium (Ca) EPA 200.7	Calcium	329 mg/L		0.50	07/24/18 16:00 PD	07/25/18 17:38 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	07/24/18 16:00 PD	07/25/18 13:55 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	07/24/18 16:00 PD	07/25/18 13:55 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	07/24/18 16:00 PD	07/25/18 13:55 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	07/24/18 16:00 PD	07/25/18 13:15 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	07/25/18 08:45 RW	07/25/18 15:34 RW
Molybdenum (Mo) EPA 200.8	Molybdenum	0.005 mg/L		0.005	07/24/18 16:00 PD	07/25/18 13:55 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	07/24/18 16:00 PD	07/25/18 13:55 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	07/24/18 16:00 PD	07/25/18 13:55 PD

Sample: *Blank Water MK-126641* Location Code: PWSID#:

Collection Type: Grab Sample Time: 7/19/18 11:25 Lab Log# AG20019-07

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	BPQL mg/L		0.500	07/23/18 12:04 BM	07/23/18 19:24 BM
Fluoride EPA 300.0	Fluoride	BPQL mg/L		0.10	07/23/18 12:04 BM	07/23/18 19:24 BM
Sulfate EPA 300.0	Sulfate	BPQL mg/L		0.500	07/23/18 12:04 BM	07/23/18 19:24 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	BPQL mg/L		25.0	07/23/18 12:37 ZS	07/25/18 10:46 ZS
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	07/24/18 16:00 PD	07/25/18 14:00 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	07/24/18 16:00 PD	07/25/18 14:00 PD
Barium (Ba) EPA 200.8	Barium	BPQL mg/L		0.005	07/24/18 16:00 PD	07/25/18 14:00 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	07/24/18 16:00 PD	07/25/18 14:00 PD
Boron (B) EPA 200.8	Boron	BPQL mg/L		0.025	07/24/18 16:00 PD	07/25/18 14:00 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	07/24/18 16:00 PD	07/25/18 14:00 PD
Calcium (Ca) EPA 200.7	Calcium	BPQL mg/L		0.10	07/24/18 16:00 PD	07/25/18 16:59 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	07/24/18 16:00 PD	07/25/18 14:00 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	07/24/18 16:00 PD	07/25/18 14:00 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	07/24/18 16:00 PD	07/25/18 14:00 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	07/24/18 16:00 PD	07/25/18 13:32 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	07/25/18 08:45 RW	07/25/18 15:37 RW
Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL mg/L		0.005	07/24/18 16:00 PD	07/25/18 14:00 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	07/24/18 16:00 PD	07/25/18 14:00 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	07/24/18 16:00 PD	07/25/18 14:00 PD

Notes and Definitions

#52	Analyte recoveries are outside of acceptance limits for the matrix spike sample. This failure does not invalidate data reported.
MCL	Analyte concentration may exceed Maximum Contaminant Limit (MCL) for EPA Primary or Secondary Drinking Water Regulations.
###	Analyte concentration may exceed regulatory limit.
PQL	Practical Quantitation Limit - the method reporting limit (MRL) adjusted for any dilutions or other changes made to the sample to deal with interferences/matrix effects
BPQL	Below Practical Quantitation Limit (if applicable).

The "Prep Date" of the QC analysis coincides with the characters of the appropriate QC Lab ID. (Example: 19 A 02 15 - BLK = 2019, Jan 2, Batch #15 - Blank)

Lab Manager

Quality Control Data

Blank Data

QC Lab #	Test Group	Test	Result		PQL	Flags
18G2329-BLK1	Chloride EPA 300.0	Chloride	BPQL	mg/L	0.500	
18G2329-BLK1	Fluoride EPA 300.0	Fluoride	BPQL	mg/L	0.10	
18G2329-BLK1	Sulfate EPA 300.0	Sulfate	BPQL	mg/L	0.500	
18G2333-BLK1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	BPQL	mg/L	25.0	
18G2446-BLK1	Antimony (Sb) EPA 200.8	Antimony	BPQL	mg/L	0.005	
18G2446-BLK1	Arsenic (As) EPA 200.8	Arsenic	BPQL	mg/L	0.0005	
18G2446-BLK1	Barium (Ba) EPA 200.8	Barium	BPQL	mg/L	0.005	
18G2446-BLK1	Beryllium (Be) EPA 200.8	Beryllium	BPQL	mg/L	0.001	
18G2446-BLK1	Boron (B) EPA 200.8	Boron	BPQL	mg/L	0.025	
18G2446-BLK1	Cadmium (Cd) EPA 200.8	Cadmium	BPQL	mg/L	0.0010	
18G2448-BLK1	Calcium (Ca) EPA 200.7	Calcium	BPQL	mg/L	0.10	
18G2446-BLK1	Chromium (Cr) EPA 200.8	Chromium	BPQL	mg/L	0.010	
18G2446-BLK1	Cobalt (Co) EPA 200.8	Cobalt	BPQL	mg/L	0.010	
18G2446-BLK1	Lead (Pb) EPA 200.8	Lead	BPQL	mg/L	0.0005	
18G2447-BLK1	Lithium (Li) EPA 6020A	Lithium	BPQL	mg/L	0.050	
18G2529-BLK1	Mercury (Hg) EPA 245.1	Mercury	BPQL	ug/L	0.050	
18G2446-BLK1	Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL	mg/L	0.005	
18G2446-BLK1	Selenium (Se) EPA 200.8	Selenium	BPQL	mg/L	0.0050	
18G2446-BLK1	Thallium (Tl) EPA 200.8	Thallium	BPQL	mg/L	0.0005	

Duplicate Sample Data

QC Lab #	Test Group	Test Name	Source	Dup Result	Samp Result	% RPD	RPD Limit	Flags
18G2329-DUP1	Chloride EPA 300.0	Chloride	AG20019-07	BPQL	BPQL	UDL	20	
18G2329-DUP1	Fluoride EPA 300.0	Fluoride	AG20019-07	BPQL	BPQL	UDL	20	
18G2329-DUP1	Sulfate EPA 300.0	Sulfate	AG20019-07	BPQL	BPQL	UDL	20	

Quality Control Data

Laboratory Control Sample Data

Lab QC#	Test Group	Test Name	LCS Result	Spike Level	Units	% Rec.	Control Limits	Flags
18G2329-BS1	Chloride EPA 300.0	Chloride	2.94	3.000	mg/L	98	90 - 110	
18G2329-BS1	Fluoride EPA 300.0	Fluoride	1.89	2.000	mg/L	94	90 - 110	
18G2329-BS1	Sulfate EPA 300.0	Sulfate	15.2	15.00	mg/L	101	90 - 110	
18G2333-BS1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	945.0	1000	mg/L	94	80 - 120	
18G2446-BS1	Antimony (Sb) EPA 200.8	Antimony	0.101	0.1000	mg/L	101	85 - 115	
18G2446-BS1	Arsenic (As) EPA 200.8	Arsenic	0.101	0.1000	mg/L	101	85 - 115	
18G2446-BS1	Barium (Ba) EPA 200.8	Barium	0.103	0.1000	mg/L	103	85 - 115	
18G2446-BS1	Beryllium (Be) EPA 200.8	Beryllium	0.101	0.1000	mg/L	101	85 - 115	
18G2446-BS1	Boron (B) EPA 200.8	Boron	0.095	0.1000	mg/L	95	85 - 115	
18G2446-BS1	Cadmium (Cd) EPA 200.8	Cadmium	0.101	0.1000	mg/L	101	85 - 115	
18G2446-BS1	Chromium (Cr) EPA 200.8	Chromium	0.103	0.1000	mg/L	103	85 - 115	
18G2446-BS1	Cobalt (Co) EPA 200.8	Cobalt	0.100	0.1000	mg/L	100	85 - 115	
18G2446-BS1	Lead (Pb) EPA 200.8	Lead	0.0997	0.1000	mg/L	100	85 - 115	
18G2446-BS1	Molybdenum (Mo) EPA 200.8	Molybdenum	0.101	0.1000	mg/L	101	85 - 115	
18G2446-BS1	Selenium (Se) EPA 200.8	Selenium	0.111	0.1000	mg/L	111	85 - 115	
18G2446-BS1	Thallium (Tl) EPA 200.8	Thallium	0.1082	0.1000	mg/L	108	85 - 115	
18G2447-BS1	Lithium (Li) EPA 6020A	Lithium	0.946	1.000	mg/L	95	85 - 115	
18G2448-BS1	Calcium (Ca) EPA 200.7	Calcium	1.93	2.000	mg/L	96	85 - 115	
18G2529-BS1	Mercury (Hg) EPA 245.1	Mercury	1.85	1.667	ug/L	111	85 - 115	

Matrix Spike Data

QC Lab #	Test Group	Test Name	Source Sample	Sample Result	Units	Spike Result	Spike Level	% Rec.	Acceptance Limits	Flags
18G2329-MS1	Chloride EPA 300.0	Chloride	AG20019-07	BPQL	mg/L	3.21	3.334	96	80 - 120	
18G2329-MS1	Fluoride EPA 300.0	Fluoride	AG20019-07	BPQL	mg/L	3.07	3.334	92	80 - 120	
18G2329-MS1	Sulfate EPA 300.0	Sulfate	AG20019-07	BPQL	mg/L	3.01	3.334	90	80 - 120	
18G2446-MS1	Antimony (Sb) EPA 200.8	Antimony	AG20019-01	BPQL	mg/L	0.098	0.1000	98	85 - 115	
18G2446-MS1	Arsenic (As) EPA 200.8	Arsenic	AG20019-01	BPQL	mg/L	0.0878	0.1000	88	85 - 115	
18G2446-MS1	Barium (Ba) EPA 200.8	Barium	AG20019-01	0.182	mg/L	0.277	0.1000	95	85 - 115	
18G2446-MS1	Beryllium (Be) EPA 200.8	Beryllium	AG20019-01	BPQL	mg/L	0.097	0.1000	97	85 - 115	
18G2446-MS1	Boron (B) EPA 200.8	Boron	AG20019-01	0.077	mg/L	0.187	0.1000	110	85 - 115	
18G2446-MS1	Cadmium (Cd) EPA 200.8	Cadmium	AG20019-01	BPQL	mg/L	0.0953	0.1000	95	85 - 115	
18G2448-MS1	Calcium (Ca) EPA 200.7	Calcium	AG20019-07	0.09	mg/L	2.00	2.000	96	85 - 115	
18G2446-MS1	Chromium (Cr) EPA 200.8	Chromium	AG20019-01	BPQL	mg/L	0.084	0.1000	84	85 - 115	#S2
18G2446-MS1	Cobalt (Co) EPA 200.8	Cobalt	AG20019-01	BPQL	mg/L	0.089	0.1000	89	85 - 115	
18G2446-MS1	Lead (Pb) EPA 200.8	Lead	AG20019-01	BPQL	mg/L	0.101	0.1000	101	85 - 115	
18G2447-MS1	Lithium (Li) EPA 6020A	Lithium	AG20019-01	BPQL	mg/L	0.888	1.000	89	85 - 115	
18G2446-MS1	Molybdenum (Mo) EPA 200.8	Molybdenum	AG20019-01	BPQL	mg/L	0.099	0.1000	99	85 - 115	
18G2446-MS1	Selenium (Se) EPA 200.8	Selenium	AG20019-01	BPQL	mg/L	0.0952	0.1000	95	85 - 115	
18G2446-MS1	Thallium (Tl) EPA 200.8	Thallium	AG20019-01	BPQL	mg/L	0.1037	0.1000	104	85 - 115	

Quality Control Data

Matrix Spike Duplicate Data

QC Lab #	Test Group	Test Name	Sample Result	Spike Result	Spike Level	Units	% Rec.	Rec. Limits	% RPD	RPD Limit	Flags
18G2446-MSD1	Antimony (Sb) EPA 200.8	Antimony	BPQL	0.107	0.1000	mg/L	107	85-115	8	20	
18G2446-MSD1	Arsenic (As) EPA 200.8	Arsenic	BPQL	0.0915	0.1000	mg/L	92	85-115	4	20	
18G2446-MSD1	Barium (Ba) EPA 200.8	Barium	0.182	0.297	0.1000	mg/L	115	85-115	7	20	
18G2446-MSD1	Beryllium (Be) EPA 200.8	Beryllium	BPQL	0.103	0.1000	mg/L	103	85-115	6	20	
18G2446-MSD1	Boron (B) EPA 200.8	Boron	0.077	0.186	0.1000	mg/L	108	85-115	0.9	20	
18G2446-MSD1	Cadmium (Cd) EPA 200.8	Cadmium	BPQL	0.103	0.1000	mg/L	103	85-115	8	20	
18G2448-MSD1	Calcium (Ca) EPA 200.7	Calcium	0.09	2.01	2.000	mg/L	96	85-115	0.5	20	
18G2446-MSD1	Chromium (Cr) EPA 200.8	Chromium	BPQL	0.087	0.1000	mg/L	87	85-115	4	20	
18G2446-MSD1	Cobalt (Co) EPA 200.8	Cobalt	BPQL	0.094	0.1000	mg/L	94	85-115	6	20	
18G2446-MSD1	Lead (Pb) EPA 200.8	Lead	BPQL	0.111	0.1000	mg/L	111	85-115	10	20	
18G2447-MSD1	Lithium (Li) EPA 6020A	Lithium	BPQL	0.892	1.000	mg/L	89	85-115	0.5	20	
18G2446-MSD1	Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL	0.107	0.1000	mg/L	107	85-115	8	20	
18G2446-MSD1	Selenium (Se) EPA 200.8	Selenium	BPQL	0.100	0.1000	mg/L	100	85-115	5	20	
18G2446-MSD1	Thallium (Tl) EPA 200.8	Thallium	BPQL	0.1118	0.1000	mg/L	112	85-115	8	20	

* Complete Entire COC to be in Compliance*

☐ RUSH Due Date

Accurate Environmental Labs

Chain of Custody

Client Name: **OG&E Muskogee Power Plant**

Project Name: **CCR Groundwater Monitoring**

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix or Source	Grab (G) or Comp (C)	Client I.D. / Sample Location		Field Results (pH, Temp, Chlorine)			# of Containers	Boron, Calcium, Chloride, Fluoride, Sulfate (Cool <4°C)	TDS (Cool <4°C)	Metals* (see comments) (Cool <4°C HNO3)	~~Radium 226 and 228~~ combined (Cool <4°C)	Mercury (EPA 245.1) (Cool <4°C)	Fluoride (EPA 300) (Cool <4°C)
AG-20019																
-01	7/19/18	0935	GW	G	MW-1	MK-126635				3	X	X	X	X	X	X
-02	7/19/18	0957	GW	G	MW-2	MK-126636				3	X	X	X	X	X	X
-03	7/19/18	1018	GW	G	MW-3	MK-126637				3	X	X	X	X	X	X
-04	7/19/18	1046	GW	G	MW-4	MK-126638				3	X	X	X	X	X	X
-05	7/19/18	1110	GW	G	MW-5	MK-126639				3	X	X	X	X	X	X

On-Site Info: Raw Alkalinity (TOC Raw)= ________ mg/L Turbidity (E.Coli)= ________ ntu

Matrix Codes: DW = Drinkingwater ; WW = Wastewater ; SL = Sludge ; O = Other

E.Coli Source: GWUDI-FS= Groundwater under direct influence of Flowing Stream GWUDI-RL= Groundwater under direct influence of Reservoir/Lake

Field Instrument Calibration				
Meter Type	Standards	Final Read.	Date , Time	Initials

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300),
*Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Colbalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

-- All Glass containers provided by Accurate Labs have Teflon lined lids --
-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --
-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility.

Signature: [signature] Date/Time: 7-20-18 1041

Sampled By: Michael Jordan Company: Oklahoma Gas & Electric Sample Method:

Relinquished By:	Date/Time	Received By:		Date/Time
☐ Relinquished to Lab By: ☐ Rcv'd to Log-in Fridge By: [signature]	7-20-18 1041	Received at Lab By: [signature]	Rec'd °C: 2.5	7-20-18 1041

Reporting Requirements (standard 10-15 working days) Compliance Reporting? Yes or No (DMR, PWS,) Oklahoma PWS ID # RUSH Request (if available) ________ (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: 5501 Three Forks Road
Ft. Gibson, OK 74434

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

Mail Invoice To: Email invoice to:

Bid # -

Address: APVendorInvoices@oge.com PO # - 4500883927

Phone #: (553-4079) Fax #: (405) 553-4063

Attachment 2 : Analytical Report

Attachment 2 : Analytical Report

*** Complete Entire COC to be in Compliance***

☐ **RUSH** **Due Date**

Chain of Custody

Accurate Environmental Labs

Client Name: **OG&E Muskogee Power Plant**

Project Name: **CCR Groundwater Monitoring**

Accurate Unique Order #	Date Sample Taken	Time Sample Taken	Matrix (Water, Soil, Sludge, Solid)	Grab (G) or Comp (C)	Client ID / Sample Location (MW-1, MW-2, MW-3, Blank, Duplicate, Equip. Blank, etc.)	Field Results (pH, Temp, Conductivity, Oxidation Reduction Potential)			Sample Preservation & # of Containers	Cool <4°C	Cool <4°C	Cool <4°C HNO3	Cool <4°C	Cool <4°C	Cool <4°C
									Analysis Requested (Preservative)	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals* (see comments)	Radium 226 and 228 combined MH 7/20/18	Mercury (EPA 245.1)	Fluoride (EPA 300)
AG-7019															
-06	7/19/18	1046	GW	G	MW-4 DUP	MK-	2664			3	X	X	X	X	X	X
-07	7/19/18	1125	GW	G	Blank Water	MK-	2664			3	X	X	X	X	X	X

On-Site Info: *Raw Alkalinity (TOC Raw)=* _____ *mg/L* *Turbidity (E.Coli)=* _____ *ntu*

Matrix Codes DW = *Drinkingwater*; WW = *Wastewater*; SL. = *Sludge*; O = *Other*

E.Coli Source GWUDI-FS= *Groundwater under direct influence of Flowing Stream* GWUDI-RL= *Groundwater under direct influence of Reservoir/Lake*

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

Field Instrument Calibration

Meter Type	Standards	Final Read.	Date , Time	Initials

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility.

Signature: [signature]

Date/Time: 7-20-18 1040

Sampled By: Michael Holder

Company: Oklahoma Gas & Electric

Sample Method:

Relinquished By:	Date/Time	Received By:	Date/Time
☐ Relinquished to Lab By:			
☐ Reinq'd to Log-in Pickup By:	Date/Time 7-20-18 1041	Received at Lab By:	Rec'd °C 2.5 Date/Time 7-20-18 1041

Reporting Requirements (standard 10-15 working days)

Compliance Reporting? *Yes or No* (DMR, PWS,)

Oklahoma PWS ID # _ _ _ _ _ _ _

RUSH Request (if available) _____ (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: *5501 Three Forks Road, Ft. Gibson, OK 74434*

Phone #: *(405) 553-4079* Fax #: *(405) 553-4063*

Email:

Mail Invoice To: **Email invoice to:**

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Bid # -

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505 South Lowry Street, Stillwater, OK 74074 Phone: (405) 372-5300 Fax: (405) 372-5396

6558 E. 40th Street, Tulsa, OK 74074 Phone: (918) 663-5400 Fax: (918) 663-6300

12036 N. Pennsylvania, Oklahoma City, OK 73120 Phone: (405) 751-3132 Fax: (405) 751-3108

Accurate Environmental Laboratories

August 22, 2018

Client: OG&E - Muskogee

5501 Three Forks Road

Fort Gibson, OK 74434

Requested By: -

National Environmental Laboratory Accreditation Program Kansas CERT # E-10219

Sample Project Name:	CCR Groundwater Monitoring
Date Samples Received:	July 20, 2018 Time: 10:41 sample temp upon arrival at lab = 2°C - On Ice
Matrix:	Ground Water
Lab Log Numbers:	AG20044-01 AG20044-02 AG20044-03 AG20044-04 AG20044-05 AG20044-06 AG20044-07
Work Order:	AG20044
Report #	AG20044-0822180927
EPA Lab ID#'s:	Stillwater OK00092 Tulsa OK00983 OKC OK00129 ICR OK 001
Oklahoma Certification:	Stillwater WasteWater, DEQ 8316/ Drinking Water, DEQ D9602 Tulsa WasteWater, DEQ 9905 / Drinking Water, DEQ D9901 Oklahoma City WasteWater DEQ 7202 / Drinking Water, DEQ D9937
Kansas Certification:	Stillwater NELAP CERT # E-10219 Oklahoma City NELAP CERT # E-10414
New Hampshire Cert.:	Oklahoma City Drinking Water NH ELAP Lab ID # 2072
Texas Certification:	Stillwater Drinking Water NELAP CERT # T105704533-14-1
Method Reference:	40 CFR 136, 141, and 261 Methods for Chemical Analysis of Water and Wastes EPA-600/4-79-020, March 1983. Test Methods for Evaluating Solid Wastes, SW-846, Final Update III. Standard Methods 1998 (20th Edition), Standard Methods 2005 (21st Edition) and Standard Methods 2011 (22nd Edition) for the Examination of Water and Wastewater.
Analysis Reference:	If qualifiers present in "Prep Info" or "Analysis Info", then analysis performed as follows: @= Tulsa Lab and * = OKC Lab. If no qualifiers present, then analysis performed at Stillwater Lab. Accurate Environmental Laboratories certify that the test results performed at the Stillwater lab meet all requirements of NELAP. Any exceptions to this can be found in the report footer or Quality Control Section of the report. This report is to only be replicated in its entirety. Accurate Environmental sampling protocol was followed for any sampling performed by Accurate Field Services.

Sample: *MW-1 MK-126635* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 7/19/18 9:35 **Lab Log#** AG20044-01

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.750	07/30/18 11:20	08/03/18 07:45
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	435 pCi/L			07/30/18 11:20	08/03/18 07:45
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.223	08/01/18 08:40	08/02/18 13:40
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.154 pCi/L			08/01/18 08:40	08/02/18 13:40

Sample: *MW-2 MK-126636* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 7/19/18 9:57 **Lab Log#** AG20044-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.561	07/30/18 11:20	08/03/18 07:45
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.413 pCi/L			07/30/18 11:20	08/03/18 07:45
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	1.43 pCi/L		0.200	08/01/18 08:40	08/02/18 13:40
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.461 pCi/L			08/01/18 08:40	08/02/18 13:40

Sample: *MW-3 MK-126637* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 7/19/18 10:18 **Lab Log#** AG20044-03

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.813	07/30/18 11:20	08/15/18 09:20
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.562 pCi/L			07/30/18 11:20	08/15/18 09:20
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.339	08/01/18 08:40	08/02/18 13:40
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.269 pCi/L			08/01/18 08:40	08/02/18 13:40

Sample: *MW-4 MK-126638* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 7/19/18 10:46 **Lab Log#** AG20044-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	1.29 pCi/L		0.665	07/30/18 11:20	08/15/18 09:20
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.495 pCi/L			07/30/18 11:20	08/15/18 09:20
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.311 pCi/L		0.236	08/01/18 08:40	08/02/18 13:40
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.233 pCi/L			08/01/18 08:40	08/02/18 13:40

Sample: *MW-5 MK-126639* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 7/19/18 11:10 **Lab Log#** AG20044-05

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.593	07/30/18 11:20	08/15/18 09:20
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.420 pCi/L			07/30/18 11:20	08/15/18 09:20
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.228	08/01/18 08:40	08/02/18 13:40
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.120 pCi/L			08/01/18 08:40	08/02/18 13:40

Sample: *MW-4 DUP MK-126640* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 7/19/18 10:46 **Lab Log#** AG20044-06

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.637	08/02/18 10:09	08/09/18 09:15
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.419 pCi/L			08/02/18 10:09	08/09/18 09:15
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.449 pCi/L		0.299	08/03/18 09:07	08/09/18 14:21
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.381 pCi/L			08/03/18 09:07	08/09/18 14:21

Sample: *Blank Water MK-126641* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 7/19/18 11:25 **Lab Log#** AG20044-07

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.599	07/30/18 11:20	08/15/18 09:20
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.434 pCi/L			07/30/18 11:20	08/15/18 09:20
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.595 pCi/L		0.215	08/01/18 08:40	08/02/18 13:40
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.314 pCi/L			08/01/18 08:40	08/02/18 13:40

Notes and Definitions

***Alpha, Beta and Radium analysis performed under NELAC certification NJ OK001 and OK 9517.

_BK	This compound was detected in the method blank above the PQL.
MCL	Analyte concentration may exceed Maximum Contaminant Limit (MCL) for EPA Primary or Secondary Drinking Water Regulations.
###	Analyte concentration may exceed regulatory limit.
PQL	Practical Quantitation Limit - the method reporting limit (MRL) adjusted for any dilutions or other changes made to the sample to deal with interferences/matrix effects
BPQL	Below Practical Quantitation Limit (if applicable).

The "Prep Date" of the QC analysis coincides with the characters of the appropriate QC Lab ID. (Example: 19 A 02 15 - BLK = 2019, Jan 2, Batch #15 - Blank)

Lab Manager

Quality Control Data

Blank Data

QC Lab #	Test Group	Test	Result		PQL	Flags
18H1322-BLK1	Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL	pCi/L	0.503	
18H2178-BLK1	Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	0.561	pCi/L	0.369	_BK
18H1323-BLK1	Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL	pCi/L	0.152	
18H2179-BLK1	Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL	pCi/L	0.152	

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

☐ RUSH Due Date

Chain of Custody

Accurate Environmental Labs

Client Name: OG&E Muskogee Power Plant

Project Name: CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix or Source (Refer, below)	Grab (G) or Comp (C)	Client I.D. / Sample Location or DEQ / EPA Location Code	Field Results (pH, Temp, Chlorine, ...) (note analysis & units)	# of Container	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals* (see comments)	Radium 226 and 228 coombined	Mercury (EPA 245.1)	Fluorides (EPA 300)
Sample Preserv. & Container #								Cool <4°C	Cool <4°C	HNO3 Cool <4°C	Cool <4°C	Cool <4°C	Cool <4°C
Analysis Requested #													
44 AG 10078													
-01	7/19/18	0935	GW	G	MW-1 MK- 126635		3	X	X	X	X	X	X
-02	7/19/18	0957	GW	G	MW-2 MK- 126636		3	X	X	X	X	X	X
-03	7/19/18	1010	GW	G	MW-3 MK- 126637		3	X	X	X	X	X	X
-04	7/19/18	1046	GW	G	MW-4 MK- 126638		3	X	X	X	X	X	X
-05	7/19/18	1110	GW	G	MW-5 MK- 126639		3	X	X	X	X	X	X

On-Site Info: Raw Alkalinity (TOC Raw)= _____ mg/L Turbidity (E.Coli)= _____ ntu

Matrix Codes: DW = Drinkingwater ; WW = Wastewater ; SL = Sludge ; O = Other _____

E.Coli Source: GWUDI-FS= Groundwater under direct influence of Flowing Stream GWUDI-RL= Groundwater under direct influence of Reservoir/Lake

Field Instrument Calibration -

Meter Type	Standards	Final Read.	Date . Time	Initials

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occured during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility. Signature: _____ Date/Time: 7-20-18 1040

Sampled By: Michael Jordan Company: Oklahoma Gas & Electric Sample Method:

Relinquished By:	Date/Time	Received By:	Date/Time
☐ Relinquished to Lab By:			
☐ Rel'd to Log-in Fridge By:	Date/Time 7-20-18 1041	Received at Lab By:	Rec'd °C 2.5 Date/Time 7-20-18 1041

Reporting Requirements (standard 10-15 working days)	Compliance Reporting?	Yes or No (DMR, PWS,)	Oklahoma PWS ID #	RUSH Request (if available)	(Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

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Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

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Chain of Custody

Accurate Environmental Labs

Client Name- OG&E Muskogee Power Plant

Project Name- CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix or Source (Refer below)	Grab (G) or Comp (C)	Client I.D. / Sample Location or DEQ / EPA Location Code	Field Results (pH, Temp, Chlorine, ...) (note analysis & units)	Sample Preserv. & Container #	Cool <4°C	Cool <4°C	<4°C HNO3	Cool <4°C	Cool <4°C	Cool <4°C
							Analysis Requested →	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals* (see comments)	Radium 226 and 228 combined	Nitrate (EPA 245.1)	Fluoride (EPA 300)
AG [illegible] 49							# of Containers →						
-06	7/19/18	1046	GW	G	MW-4 DUP MK-12664		3	X	X	X	X	X	X
-07	7/19/18	1125	GW	G	Blank Water MK-12667		3	X	X	X	X	X	X

On-Site Info: Raw Alkalinity (TOC Raw)= _____ mg/L; Turbidity (E.Coli)= _____ ntu

Matrix Codes: DW = Drinkingwater; WW = Wastewater; SL = Sludge; O = Other _____

E.Coli Source: GWUDI-FS= Groundwater under direct influence of Flowing Stream GWUDI-RL= Groundwater under direct influence of Reservoir/Lake

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

Field Instrument Calibration -

Meter Type	Standards	Final Read.	Date . Time	Initials

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility. Signature: _____ Date/Time 7-20-18 1040

Sampled By: Michael Jordan Company: Oklahoma Gas & Electric Sample Method:

Relinquished By:	Date/Time	Received By:	Date/Time
☐ Relinquished to Lab By:	Date/Time 7-20-18 1041	Received at Lab By:	Rec'd °C 2.5 Date/Time 7-20-18 1041
☐ Relq'd to Log-In Fridge By:			

Reporting Requirements (standard 10-15 working days)	Compliance Reporting?	Yes or No (DMR, PWS,)	Oklahoma PWS ID #		RUSH Request (if available)	(Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

Mail Invoice To: Email invoice to:

Address: APVendorInvoices@oge.com

Bid # -

PO # - 4500883927

Phone #: (553-4079) Fax #: (405) 553-4063

www.accuratelabs.com (800) 516-5227

505 South Lowry Street Stillwater, OK 74074 Phone: (405) 372-5300 Fax: (405) 372-5396

6558 E. 40th Street Tulsa, OK 74074 Phone: (918) 663-5400 Fax: (918) 663-6300

12036 N. Pennsylvania Oklahoma City, OK 73120 Phone: (405) 751-3132 Fax: (405) 751-3108

Sampling Log

Date: 8-2-2018

Sample ID

Weather Conditions and Temperature: Clear, Sunny 93°

Field Samplers **Names:** Jermy Blodgett, Jason Childress, Micheal Sorahan

Groundwater Level (ft below TOC): 12'2" TD: 20'3"

MW01

Sample Time: 9:31

Purge Volume: 4.08 gal **Field pH:**

Comments:

Groundwater Level (ft below TOC):: 6'2" TD: 20'

MW02

Sample Time: 10:00

Purge Volume: 7.14 gal **Field pH:**

Comments:

Groundwater Level (ft below TOC):: 10' TD: 22'7"

MW03

Sample Time: 10:25

Purge Volume: 6.63 gal **Field pH:**

Comments:

Groundwater Level (ft below TOC):: 12'4" TD: 22'4"

MW04

Sample Time: 10:51

Purge Volume: 5.1 gal **Field pH:**

Comments:

Groundwater Level (ft below TOC):: 11'7" TD: 21'7"

MW05

Sample Time: 11:13

Purge Volume: 5.1 gal **Field pH:**

Comments:

Additional Notes:

Groundwater Velocity **Date: 8/02/2018**

V=KI/n V = Groundwater velocity
K = Horizontal hydraulic conductivity (at site: 21.3767 µm/sec = 0.00007013'/sec = 7.013E-05)
I = Horizontal hydraulic gradient = dh/dl = difference in head/horizontal distance between wells)
n = Effective porosity = 0.29 to 0.41 (Sandy Clay) [Use 0.29]

MW1 - MW2:

dh =	1	MW1 =	509	12.167	496.833
dl =	1053.2	MW2 =	502	6.167	495.833
I = dh/dl =	0.000949487				

V = KI/n = 2.29612E-07 ft/sec = 0.069986 µm/sec

MW1 - MW3:

dh =	1.833	MW1 =	509	12.167	496.833
dl =	1390	MW3 =	505	10	495
I = dh/dl =	0.001318705				

V = KI/n = 3.18899E-07 ft/sec = 0.0972 µm/sec

MW5 - MW4:

dh =	-0.253	MW5 =	506	11.583	494.417
dl =	326.21	MW4 =	507	12.33	494.67
I = dh/dl =	-0.000775574				

V = KI/n = -1.87555E-07 ft/sec = -0.05717 µm/sec

MW5 - MW3:

dh =	-0.583	MW5 =	506	11.583	494.417
dl =	773.75	MW3 =	505	10	495
I = dh/dl =	-0.000753473				

V = KI/n = -1.82211E-07 ft/sec = -0.05554 µm/sec

Attachment 2 : Groundwater Velocity Calculation

Attachment 2 : Groundwater Flow Direction Field Notes

8-2-2019

W1-MW2-MW3: HG: 0.02964 ft/ft
DOF: 138.26° clockwise from True North

W1-MW2-MW4: HG: 0.00844 ft/ft
DOF: 162.02° clockwise from True North

W1-MW2-MW5: HG: 0.00614 ft/ft
DOF: 177.13° clockwise from True North

W-MW3-MW4: HG: 0.00113 ft/ft
DOF: 275.48° clockwise from True North

W1-MW3-MW5: HG: 0.00111 ft/ft
DOF: 274.28° clockwise from True North

W1-MW4-MW5: HG: 0.00109 ft/ft
DOF: 271.57° clockwise from True North

J2-MW3-MW4: HG: 0.00323 ft/ft
DOF: 41.54° clockwise from True North

J2-MW3-MW5: HG: 0.00327 ft/ft
DOF: 38.37° clockwise from True North

J2-MW4-MW5: HG: 0.00366 ft/ft
DOF: 35.35° clockwise from True North

J3-MW4-MW5: HG: 0.00077 ft/ft
DOF: 307.98° clockwise from True North

Accurate Environmental Laboratories

August 20, 2018

Client: OG&E - Muskogee

5501 Three Forks Road

Fort Gibson, OK 74434

Requested By: -

National Environmental Laboratory Accreditation Program Kansas CERT # E-10219

Sample Project Name:	CCR Groundwater Monitering
Date Samples Received:	August 02, 2018 Time: 15:05 sample temp upon arrival at lab = 1°C - On Ice
Matrix:	Ground Water
Lab Log Numbers:	AH02106-01 AH02106-02 AH02106-03 AH02106-04 AH02106-05 AH02106-06 AH02106-07
Work Order:	AH02106
Report #	AH02106-0820181059
EPA Lab ID#'s:	Stillwater OK00092 Tulsa OK00983 OKC OK00129 ICR OK 001
Oklahoma Certification:	Stillwater WasteWater, DEQ 8316/ Drinking Water, DEQ D9602 Tulsa WasteWater, DEQ 9905 / Drinking Water, DEQ D9901 Oklahoma City WasteWater DEQ 7202 / Drinking Water, DEQ D9937
Kansas Certification:	Stillwater NELAP CERT # E-10219 Oklahoma City NELAP CERT # E-10414
New Hampshire Cert.:	Oklahoma City Drinking Water NH ELAP Lab ID # 2072
Texas Certification:	Stillwater Drinking Water NELAP CERT # T105704533-14-1
Method Reference:	40 CFR 136, 141, and 261 Methods for Chemical Analysis of Water and Wastes EPA-600/4-79-020, March 1983. Test Methods for Evaluating Solid Wastes, SW-846, Final Update III. Standard Methods 1998 (20th Edition), Standard Methods 2005 (21st Edition) and Standard Methods 2011 (22nd Edition) for the Examination of Water and Wastewater.
Analysis Reference:	If qualifiers present in "Prep Info" or "Analysis Info", then analysis performed as follows: @= Tulsa Lab and * = OKC Lab. If no qualifiers present, then analysis performed at Stillwater Lab. Accurate Environmental Laboratories certify that the test results performed at the Stillwater lab meet all requirements of NELAP. Any exceptions to this can be found in the report footer or Quality Control Section of the report. This report is to only be replicated in its entirety. Accurate Environmental sampling protocol was followed for any sampling performed by Accurate Field Services.

Sample: *MW-1 MK-126652* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 8/2/18 9:31 **Lab Log#** AH02106-01

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	0.632 mg/L		0.500	08/06/18 08:13 BM	08/06/18 19:22 BM
Fluoride EPA 300.0	Fluoride	0.21 mg/L		0.10	08/06/18 08:13 BM	08/06/18 19:22 BM
Sulfate EPA 300.0	Sulfate	6.90 mg/L		0.500	08/06/18 08:13 BM	08/06/18 19:22 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	425.0 mg/L		25.0	08/06/18 09:59 BM	08/07/18 13:15 BM
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	08/06/18 16:15 RW	08/07/18 19:10 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	08/06/18 16:15 RW	08/07/18 19:10 PD
Barium (Ba) EPA 200.8	Barium	0.194 mg/L		0.005	08/06/18 16:15 RW	08/07/18 19:10 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	08/06/18 16:15 RW	08/07/18 19:10 PD
Boron (B) EPA 200.8	Boron	0.082 mg/L		0.025	08/06/18 16:15 RW	08/07/18 19:10 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	08/06/18 16:15 RW	08/07/18 19:10 PD
Calcium (Ca) EPA 200.7	Calcium	106 mg/L		0.50	08/06/18 16:15 RW	08/10/18 19:28 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	08/06/18 16:15 RW	08/07/18 19:10 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	08/06/18 16:15 RW	08/07/18 19:10 PD
Lead (Pb) EPA 200.8	Lead	0.0008 mg/L		0.0005	08/06/18 16:15 RW	08/07/18 19:10 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	08/06/18 16:15 RW	08/16/18 12:57 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	08/07/18 08:45 RW	08/07/18 14:45 rw
Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL mg/L		0.005	08/06/18 16:15 RW	08/07/18 19:10 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	08/06/18 16:15 RW	08/07/18 19:10 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	08/06/18 16:15 RW	08/07/18 19:10 PD

Sample: *MW-2 MK-126653* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 8/2/18 10:00 **Lab Log#** AH02106-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	41.0 mg/L		5.00	08/06/18 08:13 BM	08/06/18 20:31 BM
Fluoride EPA 300.0	Fluoride	0.22 mg/L		0.10	08/06/18 08:13 BM	08/06/18 20:08 BM
Sulfate EPA 300.0	Sulfate	112 mg/L		5.00	08/06/18 08:13 BM	08/06/18 20:31 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	675.0 mg/L		25.0	08/06/18 09:59 BM	08/07/18 13:15 BM
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	08/06/18 16:15 RW	08/07/18 19:15 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	08/06/18 16:15 RW	08/07/18 19:15 PD
Barium (Ba) EPA 200.8	Barium	0.261 mg/L		0.005	08/06/18 16:15 RW	08/07/18 19:15 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	08/06/18 16:15 RW	08/07/18 19:15 PD
Boron (B) EPA 200.8	Boron	0.223 mg/L		0.025	08/06/18 16:15 RW	08/07/18 19:15 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	08/06/18 16:15 RW	08/07/18 19:15 PD
Calcium (Ca) EPA 200.7	Calcium	131 mg/L		0.50	08/06/18 16:15 RW	08/10/18 19:31 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	08/06/18 16:15 RW	08/07/18 19:15 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	08/06/18 16:15 RW	08/07/18 19:15 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	08/06/18 16:15 RW	08/07/18 19:15 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	08/06/18 16:15 RW	08/16/18 13:01 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	08/07/18 08:45 RW	08/07/18 14:48 rw

Sample: **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 8/2/18 10:00 **Lab Log#** AH02106-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Molybdenum (Mo) EPA 200.8	Molybdenum	0.005 mg/L		0.005	08/06/18 16:15 RW	08/07/18 19:15 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	08/06/18 16:15 RW	08/07/18 19:15 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	08/06/18 16:15 RW	08/07/18 19:15 PD

Sample: *MW-3 MK-126654* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 8/2/18 10:25 **Lab Log#** AH02106-03

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	177 mg/L		12.5	08/06/18 08:13 BM	08/06/18 21:17 BM
Fluoride EPA 300.0	Fluoride	0.14 mg/L		0.10	08/06/18 08:13 BM	08/06/18 20:54 BM
Sulfate EPA 300.0	Sulfate	200 mg/L		12.5	08/06/18 08:13 BM	08/06/18 21:17 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	1199 mg/L		25.0	08/06/18 09:59 BM	08/07/18 13:15 BM
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	08/06/18 16:15 RW	08/07/18 19:21 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	08/06/18 16:15 RW	08/07/18 19:21 PD
Barium (Ba) EPA 200.8	Barium	0.332 mg/L		0.005	08/06/18 16:15 RW	08/07/18 19:21 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	08/06/18 16:15 RW	08/07/18 19:21 PD
Boron (B) EPA 200.8	Boron	0.071 mg/L		0.025	08/06/18 16:15 RW	08/07/18 19:21 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	08/06/18 16:15 RW	08/07/18 19:21 PD
Calcium (Ca) EPA 200.7	Calcium	225 mg/L		0.50	08/06/18 16:15 RW	08/10/18 19:34 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	08/06/18 16:15 RW	08/07/18 19:21 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	08/06/18 16:15 RW	08/07/18 19:21 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	08/06/18 16:15 RW	08/07/18 19:21 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	08/06/18 16:15 RW	08/16/18 13:05 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	08/07/18 08:45 RW	08/07/18 14:51 rw
Molybdenum (Mo) EPA 200.8	Molybdenum	0.006 mg/L		0.005	08/06/18 16:15 RW	08/07/18 19:21 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	08/06/18 16:15 RW	08/07/18 19:21 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	08/06/18 16:15 RW	08/07/18 19:21 PD

Sample: *MW-4 MK-126655* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 8/2/18 10:51 **Lab Log#** AH02106-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	140 mg/L		12.5	08/06/18 08:13 BM	08/06/18 22:49 BM
Fluoride EPA 300.0	Fluoride	0.14 mg/L		0.10	08/06/18 08:13 BM	08/06/18 22:26 BM
Sulfate EPA 300.0	Sulfate	368 mg/L		12.5	08/06/18 08:13 BM	08/06/18 22:49 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	1557 mg/L		25.0	08/06/18 09:59 BM	08/07/18 13:15 BM
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	08/06/18 16:15 RW	08/07/18 19:26 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	08/06/18 16:15 RW	08/07/18 19:26 PD
Barium (Ba) EPA 200.8	Barium	0.262 mg/L		0.005	08/06/18 16:15 RW	08/07/18 19:26 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	08/06/18 16:15 RW	08/07/18 19:26 PD
Boron (B) EPA 200.8	Boron	0.067 mg/L		0.025	08/06/18 16:15 RW	08/07/18 19:26 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	08/06/18 16:15 RW	08/07/18 19:26 PD

Sample: | **Location Code:** | **PWSID#:**

Collection Type: Grab | **Sample Time:** 8/2/18 10:51 | **Lab Log#** AH02106-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Calcium (Ca) EPA 200.7	Calcium	329 mg/L		0.50	08/06/18 16:15 RW	08/10/18 19:37 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	08/06/18 16:15 RW	08/07/18 19:26 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	08/06/18 16:15 RW	08/07/18 19:26 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	08/06/18 16:15 RW	08/07/18 19:26 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	08/06/18 16:15 RW	08/16/18 13:10 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	08/07/18 08:45 RW	08/07/18 14:54 rw
Molybdenum (Mo) EPA 200.8	Molybdenum	0.006 mg/L		0.005	08/06/18 16:15 RW	08/07/18 19:26 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	08/06/18 16:15 RW	08/07/18 19:26 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	08/06/18 16:15 RW	08/07/18 19:26 PD

Sample: *MW-5 MK-126656* | **Location Code:** | **PWSID#:**

Collection Type: Grab | **Sample Time:** 8/2/18 11:13 | **Lab Log#** AH02106-05

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	24.0 mg/L		12.5	08/06/18 08:13 BM	08/06/18 23:35 BM
Fluoride EPA 300.0	Fluoride	0.13 mg/L		0.10	08/06/18 08:13 BM	08/06/18 23:12 BM
Sulfate EPA 300.0	Sulfate	148 mg/L		12.5	08/06/18 08:13 BM	08/06/18 23:35 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	894.0 mg/L		25.0	08/06/18 09:59 BM	08/07/18 13:15 BM
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	08/06/18 16:15 RW	08/07/18 19:32 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	08/06/18 16:15 RW	08/07/18 19:32 PD
Barium (Ba) EPA 200.8	Barium	0.152 mg/L		0.005	08/06/18 16:15 RW	08/07/18 19:32 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	08/06/18 16:15 RW	08/07/18 19:32 PD
Boron (B) EPA 200.8	Boron	0.265 mg/L		0.025	08/06/18 16:15 RW	08/07/18 19:32 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	08/06/18 16:15 RW	08/07/18 19:32 PD
Calcium (Ca) EPA 200.7	Calcium	194 mg/L		0.50	08/06/18 16:15 RW	08/10/18 19:40 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	08/06/18 16:15 RW	08/07/18 19:32 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	08/06/18 16:15 RW	08/07/18 19:32 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	08/06/18 16:15 RW	08/07/18 19:32 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	08/06/18 16:15 RW	08/16/18 13:14 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	08/07/18 08:45 RW	08/07/18 15:04 rw
Molybdenum (Mo) EPA 200.8	Molybdenum	0.005 mg/L		0.005	08/06/18 16:15 RW	08/07/18 19:32 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	08/06/18 16:15 RW	08/07/18 19:32 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	08/06/18 16:15 RW	08/07/18 19:32 PD

Sample: *MW-5 DUP MK-126657* | **Location Code:** | **PWSID#:**

Collection Type: Grab | **Sample Time:** 8/2/18 11:13 | **Lab Log#** AH02106-06

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	23.8 mg/L		12.5	08/06/18 08:13 BM	08/07/18 00:21 BM
Fluoride EPA 300.0	Fluoride	0.13 mg/L		0.10	08/06/18 08:13 BM	08/06/18 23:58 BM
Sulfate EPA 300.0	Sulfate	147 mg/L		12.5	08/06/18 08:13 BM	08/07/18 00:21 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	900.0 mg/L		25.0	08/06/18 09:59 BM	08/07/18 13:15 BM

Sample: **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 8/2/18 11:13 **Lab Log#** AH02106-06

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	08/06/18 16:15 RW	08/07/18 19:37 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	08/06/18 16:15 RW	08/07/18 19:37 PD
Barium (Ba) EPA 200.8	Barium	0.151 mg/L		0.005	08/06/18 16:15 RW	08/07/18 19:37 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	08/06/18 16:15 RW	08/07/18 19:37 PD
Boron (B) EPA 200.8	Boron	0.264 mg/L		0.025	08/06/18 16:15 RW	08/07/18 19:37 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	08/06/18 16:15 RW	08/07/18 19:37 PD
Calcium (Ca) EPA 200.7	Calcium	196 mg/L		0.50	08/06/18 16:15 RW	08/10/18 19:42 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	08/06/18 16:15 RW	08/07/18 19:37 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	08/06/18 16:15 RW	08/07/18 19:37 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	08/06/18 16:15 RW	08/07/18 19:37 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	08/06/18 16:15 RW	08/16/18 13:36 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	08/07/18 08:45 RW	08/07/18 15:07 rw
Molybdenum (Mo) EPA 200.8	Molybdenum	0.005 mg/L		0.005	08/06/18 16:15 RW	08/07/18 19:37 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	08/06/18 16:15 RW	08/07/18 19:37 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	08/06/18 16:15 RW	08/07/18 19:37 PD

Sample: *Blank Water MK-126658* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 8/2/18 11:30 **Lab Log#** AH02106-07

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	BPQL mg/L		0.500	08/06/18 08:13 BM	08/07/18 00:44 BM
Fluoride EPA 300.0	Fluoride	BPQL mg/L		0.10	08/06/18 08:13 BM	08/07/18 00:44 BM
Sulfate EPA 300.0	Sulfate	BPQL mg/L		0.500	08/06/18 08:13 BM	08/07/18 00:44 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	BPQL mg/L		25.0	08/06/18 09:59 BM	08/07/18 13:15 BM
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005 .	08/06/18 16:15 RW	08/07/18 20:00 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	08/06/18 16:15 RW	08/07/18 20:00 PD
Barium (Ba) EPA 200.8	Barium	BPQL mg/L		0.005	08/06/18 16:15 RW	08/07/18 20:00 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	08/06/18 16:15 RW	08/07/18 20:00 PD
Boron (B) EPA 200.8	Boron	BPQL mg/L		0.025	08/06/18 16:15 RW	08/07/18 20:00 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	08/06/18 16:15 RW	08/07/18 20:00 PD
Calcium (Ca) EPA 200.7	Calcium	BPQL mg/L		0.10	08/06/18 16:15 RW	08/09/18 12:39 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	08/06/18 16:15 RW	08/07/18 20:00 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	08/06/18 16:15 RW	08/07/18 20:00 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	08/06/18 16:15 RW	08/07/18 20:00 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	08/06/18 16:15 RW	08/16/18 13:40 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	08/07/18 08:45 RW	08/07/18 15:10 rw
Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL mg/L		0.005	08/06/18 16:15 RW	08/07/18 20:00 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	08/06/18 16:15 RW	08/07/18 20:00 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	08/06/18 16:15 RW	08/07/18 20:00 PD

Notes and Definitions

#52	Analyte recoveries are outside of acceptance limits for the matrix spike sample. This failure does not invalidate data reported.
MCL	Analyte concentration may exceed Maximum Contaminant Limit (MCL) for EPA Primary or Secondary Drinking Water Regulations.
###	Analyte concentration may exceed regulatory limit.
PQL	Practical Quantitation Limit - the method reporting limit (MRL) adjusted for any dilutions or other changes made to the sample to deal with interferences/matrix effects
BPQL	Below Practical Quantitation Limit (if applicable).

The "Prep Date" of the QC analysis coincides with the characters of the appropriate QC Lab ID. (Example: 12 A 02 15 - BLK = 2019, Jan 2, Batch #15 - Blank)

Lab Manager

Quality Control Data

Blank Data

QC Lab #	Test Group	Test	Result		PQL	Flags
18H0604-BLK1	Chloride EPA 300.0	Chloride	BPQL	mg/L	0.500	
18H0604-BLK1	Fluoride EPA 300.0	Fluoride	BPQL	mg/L	0.10	
18H0604-BLK1	Sulfate EPA 300.0	Sulfate	BPQL	mg/L	0.500	
18H0629-BLK1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	BPQL	mg/L	25.0	
18H0645-BLK1	Antimony (Sb) EPA 200.8	Antimony	BPQL	mg/L	0.005	
18H0645-BLK1	Arsenic (As) EPA 200.8	Arsenic	BPQL	mg/L	0.0005	
18H0645-BLK1	Barium (Ba) EPA 200.8	Barium	BPQL	mg/L	0.005	
18H0645-BLK1	Beryllium (Be) EPA 200.8	Beryllium	BPQL	mg/L	0.001	
18H0645-BLK1	Boron (B) EPA 200.8	Boron	BPQL	mg/L	0.025	
18H0645-BLK1	Cadmium (Cd) EPA 200.8	Cadmium	BPQL	mg/L	0.0010	
18H0647-BLK1	Calcium (Ca) EPA 200.7	Calcium	BPQL	mg/L	0.10	
18H0645-BLK1	Chromium (Cr) EPA 200.8	Chromium	BPQL	mg/L	0.010	
18H0645-BLK1	Cobalt (Co) EPA 200.8	Cobalt	BPQL	mg/L	0.010	
18H0645-BLK1	Lead (Pb) EPA 200.8	Lead	BPQL	mg/L	0.0005	
18H0646-BLK1	Lithium (Li) EPA 6020A	Lithium	BPQL	mg/L	0.050	
18H0732-BLK1	Mercury (Hg) EPA 245.1	Mercury	BPQL	ug/L	0.050	
18H0645-BLK1	Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL	mg/L	0.005	
18H0645-BLK1	Selenium (Se) EPA 200.8	Selenium	BPQL	mg/L	0.0050	
18H0645-BLK1	Thallium (Tl) EPA 200.8	Thallium	BPQL	mg/L	0.0005	

Duplicate Sample Data

QC Lab #	Test Group	Test Name	Source	Dup Result	Samp Result	% RPD	RPD Limit	Flags
18H0604-DUP1	Chloride EPA 300.0	Chloride	AH02106-07	BPQL	BPQL	UDL	20	
18H0604-DUP1	Fluoride EPA 300.0	Fluoride	AH02106-07	BPQL	BPQL	UDL	20	
18H0604-DUP1	Sulfate EPA 300.0	Sulfate	AH02106-07	BPQL	BPQL	UDL	20	

Quality Control Data

Laboratory Control Sample Data

Lab QC#	Test Group	Test Name	LCS Result	Spike Level	Units	% Rec.	Control Limits	Flags
18H0604-BS1	Chloride EPA 300.0	Chloride	2.96	3.000	mg/L	99	90 - 110	
18H0604-BS1	Fluoride EPA 300.0	Fluoride	1.90	2.000	mg/L	95	90 - 110	
18H0604-BS1	Sulfate EPA 300.0	Sulfate	15.3	15.00	mg/L	102	90 - 110	
18H0629-BS1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	982.0	1000	mg/L	98	80 - 120	
18H0645-BS1	Antimony (Sb) EPA 200.8	Antimony	0.101	0.1000	mg/L	101	85 - 115	
18H0645-BS1	Arsenic (As) EPA 200.8	Arsenic	0.0959	0.1000	mg/L	96	85 - 115	
18H0645-BS1	Barium (Ba) EPA 200.8	Barium	0.101	0.1000	mg/L	101	85 - 115	
18H0645-BS1	Beryllium (Be) EPA 200.8	Beryllium	0.102	0.1000	mg/L	102	85 - 115	
18H0645-BS1	Boron (B) EPA 200.8	Boron	0.099	0.1000	mg/L	99	85 - 115	
18H0645-BS1	Cadmium (Cd) EPA 200.8	Cadmium	0.100	0.1000	mg/L	100	85 - 115	
18H0645-BS1	Chromium (Cr) EPA 200.8	Chromium	0.096	0.1000	mg/L	96	85 - 115	
18H0645-BS1	Cobalt (Co) EPA 200.8	Cobalt	0.102	0.1000	mg/L	102	85 - 115	
18H0645-BS1	Lead (Pb) EPA 200.8	Lead	0.0998	0.1000	mg/L	100	85 - 115	
18H0645-BS1	Molybdenum (Mo) EPA 200.8	Molybdenum	0.103	0.1000	mg/L	103	85 - 115	
18H0645-BS1	Selenium (Se) EPA 200.8	Selenium	0.101	0.1000	mg/L	101	85 - 115	
18H0645-BS1	Thallium (Tl) EPA 200.8	Thallium	0.0967	0.1000	mg/L	97	85 - 115	
18H0646-BS1	Lithium (Li) EPA 6020A	Lithium	1.03	1.000	mg/L	103	85 - 115	
18H0647-BS1	Calcium (Ca) EPA 200.7	Calcium	0.11	0.1000	mg/L	113	85 - 115	
18H0732-BS1	Mercury (Hg) EPA 245.1	Mercury	1.57	1.667	ug/L	94	85 - 115	

Matrix Spike Data

QC Lab #	Test Group	Test Name	Source Sample	Sample Result	Units	Spike Result	Spike Level	% Rec.	Acceptance Limits	Flags
18H0604-MS1	Chloride EPA 300.0	Chloride	AH02106-07	BPQL	mg/L	3.21	3.334	96	80 - 120	
18H0604-MS1	Fluoride EPA 300.0	Fluoride	AH02106-07	BPQL	mg/L	3.05	3.334	92	80 - 120	
18H0604-MS1	Sulfate EPA 300.0	Sulfate	AH02106-07	BPQL	mg/L	2.97	3.334	89	80 - 120	
18H0645-MS1	Antimony (Sb) EPA 200.8	Antimony	AH02106-01	BPQL	mg/L	0.090	0.1000	90	85 - 115	
18H0645-MS1	Arsenic (As) EPA 200.8	Arsenic	AH02106-01	BPQL	mg/L	0.0952	0.1000	95	85 - 115	
18H0645-MS1	Barium (Ba) EPA 200.8	Barium	AH02106-01	0.194	mg/L	0.296	0.1000	103	85 - 115	
18H0645-MS1	Beryllium (Be) EPA 200.8	Beryllium	AH02106-01	BPQL	mg/L	0.103	0.1000	103	85 - 115	
18H0645-MS1	Boron (B) EPA 200.8	Boron	AH02106-01	0.082	mg/L	0.183	0.1000	102	85 - 115	
18H0645-MS1	Cadmium (Cd) EPA 200.8	Cadmium	AH02106-01	BPQL	mg/L	0.0962	0.1000	96	85 - 115	
18H0647-MS1	Calcium (Ca) EPA 200.7	Calcium	AH02106-02	131	mg/L	144	2.000	650	85 - 115	#52
18H0645-MS1	Chromium (Cr) EPA 200.8	Chromium	AH02106-01	BPQL	mg/L	0.093	0.1000	93	85 - 115	
18H0645-MS1	Cobalt (Co) EPA 200.8	Cobalt	AH02106-01	BPQL	mg/L	0.095	0.1000	95	85 - 115	
18H0645-MS1	Lead (Pb) EPA 200.8	Lead	AH02106-01	0.0008	mg/L	0.0983	0.1000	98	85 - 115	
18H0646-MS1	Lithium (Li) EPA 6020A	Lithium	AH02106-01	BPQL	mg/L	0.931	1.000	93	85 - 115	
18H0732-MS1	Mercury (Hg) EPA 245.1	Mercury	AH02106-02	BPQL	ug/L	1.70	1.667	102	85 - 115	
18H0645-MS1	Molybdenum (Mo) EPA 200.8	Molybdenum	AH02106-01	BPQL	mg/L	0.103	0.1000	103	85 - 115	
18H0645-MS1	Selenium (Se) EPA 200.8	Selenium	AH02106-01	BPQL	mg/L	0.0976	0.1000	98	85 - 115	
18H0645-MS1	Thallium (Tl) EPA 200.8	Thallium	AH02106-01	BPQL	mg/L	0.0967	0.1000	97	85 - 115	

Quality Control Data

Matrix Spike Duplicate Data

QC Lab #	Test Group	Test Name	Sample Result	Spike Result	Spike Level	Units	% Rec.	Rec. Limits	% RPD	RPD Limit	Flags
18H0645-MSD1	Antimony (Sb) EPA 200.8	Antimony	BPQL	0.088	0.1000	mg/L	88	85-115	2	20	
18H0645-MSD1	Arsenic (As) EPA 200.8	Arsenic	BPQL	0.0937	0.1000	mg/L	94	85-115	2	20	
18H0645-MSD1	Barium (Ba) EPA 200.8	Barium	0.194	0.291	0.1000	mg/L	97	85-115	2	20	
18H0645-MSD1	Beryllium (Be) EPA 200.8	Beryllium	BPQL	0.100	0.1000	mg/L	100	85-115	2	20	
18H0645-MSD1	Boron (B) EPA 200.8	Boron	0.082	0.178	0.1000	mg/L	96	85-115	3	20	
18H0645-MSD1	Cadmium (Cd) EPA 200.8	Cadmium	BPQL	0.0945	0.1000	mg/L	95	85-115	2	20	
18H0647-MSD1	Calcium (Ca) EPA 200.7	Calcium	131	143	2.000	mg/L	600	85-115	0.7	20	#52
18H0645-MSD1	Chromium (Cr) EPA 200.8	Chromium	BPQL	0.090	0.1000	mg/L	90	85-115	3	20	
18H0645-MSD1	Cobalt (Co) EPA 200.8	Cobalt	BPQL	0.093	0.1000	mg/L	93	85-115	3	20	
18H0645-MSD1	Lead (Pb) EPA 200.8	Lead	0.0008	0.0976	0.1000	mg/L	97	85-115	0.7	20	
18H0646-MSD1	Lithium (Li) EPA 6020A	Lithium	BPQL	0.966	1.000	mg/L	97	85-115	4	20	
18H0732-MSD1	Mercury (Hg) EPA 245.1	Mercury	BPQL	1.71	1.667	ug/L	103	85-115	0.6	20	
18H0645-MSD1	Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL	0.100	0.1000	mg/L	100	85-115	3	20	
18H0645-MSD1	Selenium (Se) EPA 200.8	Selenium	BPQL	0.0963	0.1000	mg/L	96	85-115	1	20	
18H0645-MSD1	Thallium (Tl) EPA 200.8	Thallium	BPQL	0.0989	0.1000	mg/L	99	85-115	2	20	

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

Accurate Environmental Labs

Chain of Custody

RUSH   Due Date

Client Name: OG&E Muskogee Power Plant

Project Name: CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix	Grab (G) or Comp (C)	Client I.D. / Sample Location	DEQ / EPA Location Code	Field Results (pH, Temp, Chlorine, Cond analysis & units)	Sample Preservation / Number of Containers	Boron, Calcium, Chloride, Fluoride, Sulfate (Cool <4°C)	TDS (Cool <4°C)	Metals* (see comments) (Cool <4°C HNO3)	Radium 226 and 228 combined (Cool <4°C)	Mercury (EPA 245.1) (Cool <4°C)	Fluoride (EPA 300) (Cool <4°C)
AHH2106-01	8/2/18	0931	GW	G	MW-1	MK-126652		3	X	X	X	X	X	X
-02	8/2/18	1000	GW	G	MW-2	MK-126653		3	X	X	X	X	X	X
-03	8/2/18	1025	GW	G	MW-3	MK-126654		3	X	X	X	X	X	X
-04	8/2/18	1051	GW	G	MW-4	MK-126655		3	X	X	X	X	X	X
-05	8/2/18	1113	GW	G	MW-5	MK-126656		3	X	X	X	X	X	X

On-Site Info: Raw Alkalinity (TOC Raw)= ________ mg/L   Turbidity (E.Coli)= ________ ntu

Matrix Codes: DW = Drinkingwater ; WW = Wastewater ; SL = Sludge ; O = Other

Well Source: GWUDI-FS= Groundwater under direct influence of Flowing Stream GWUDI-RL= Groundwater under direct influence of Reservoir/Lake

Field Instrument Calibrations				
Meter Type	Standards	Final Read	Date, Time	Initials

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Colbalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility.

Signature: [signature]   Date/Time: 8-2-18 1215

Sampled By: Michael Jordan   Company: Oklahoma Gas & Electric   Sample Method:

Relinquished By:	Date/Time	Received By:	Date/Time
☐ Relinquished to Lab By: ☐ Rele'd to Log-In Fridge By: [signature]	8-2-18 1500	Received at Lab By: [signature] Rec'd °C: 1.8 on ice	8-2-18 1505

Requesting Results in (working days): | Compliance Reporting? Yes or No (DMR, PWS,) | Oklahoma PWS ID # ________ | RUSH Request (if available) ______ (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079   Fax #: (405) 553-4063

Email:

Mail Invoice To: Email invoice to:

Address: APVendorInvoices@oge.com

Bid # -

PO # - 4500883927

Phone #: (553-4079)   Fax #: (405) 553-4063

www.accuratelabs.com (800) 516-5227 | 505 South Lowry Street, Stillwater, OK 74074 Phone: (405) 372-5300 Fax: (405) 372-5396 | 6558 E. 40th Street, Tulsa, OK 74074 Phone: (918) 663-5400 Fax: (918) 663-6300 | 12036 N. Pennsylvania, Oklahoma City, OK 73120 Phone: (405) 751-3132 Fax: (405) 751-3108

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

☐ RUSH Due Date

Chain of Custody

Accurate Environmental Labs

Client/Name: OG&E Muskogee Power Plant

Project Name: CCR Groundwater Monitoring

Account# Work Order #	Date Sample Taken	Time Sample Taken	Matrix	Comp/ Grab	Client ID / Sample Location / DEQ / EPA Program Code	Field Results (pH, Temp, Chlorine, Conductivity, Dissolved Oxygen)	Sample Temp. & # of Containers	Cool <4°C	Cool <4°C	Cool <4°C HNO3	Cool <4°C		Cool <4°C	Cool <4°C
A402106							Analyses Requested	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals* (see comments)	Radium 226 and 228 Combined		Mercury (EPA 245.1)	Fluoride (EPA 300)
-06	8/2/18	1113	GW	G	MW-5 DUP MK-12467			3	X	X	X	X	X	X
-07	8/2/18	1130	GW	G	Blank Water MK-12468			3	X	X	X	X	X	X
												MAS 2220		

QA/QC Info: Raw Alkalinity (TOC Raw)= _____ mg/L Turbidity (E.Coli)= _____ ntu

Matrix Codes: DW = Drinkingwater ; WW = Wastewater ; SL = Sludge ; O = Other _____

E.Coli Source: GWUDI-FS= Groundwater under direct influence of Flowing Stream GWUDI-RL= Groundwater under direct influence of Reservoir/Lake

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

Field Instrument Calibration

Meter Type	Standards	Final Read.	Date	Time	Initials

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the samples taken were representative of a typical operating day discharge for the above facility.

Signature: _____ Date/Time 8-2-18 1215

Sampled By: Michael Jordan Company: Oklahoma Gas & Electric Sample Method:

Relinquished By:	Date/Time	Received By:	Date/Time
☐ Relinquished to Lab By: _____			
☐ Rela'd to Lor-In Fridge By: _____	Date/Time 8-2-18 1505	Received at Lab By: _____	Rec'd °C +8 Date/Time 8-3-18 1505

Reporting Requirements (routine 30-45 working days): Compliance Reporting? Yes or No (DMR, PWS,) Oklahoma PWS ID # _____ RUSH Request (if available) _____ (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

Mail Invoice To: Email invoice to:

Address: APVendorInvoices@oge.com

Bid # -

PO # - 4500883927

Phone #: (553-4079) Fax #: (405) 553-4063

Accurate Environmental Laboratories

August 22, 2018

Client: OG&E - Muskogee

5501 Three Forks Road

Fort Gibson, OK 74434

Requested By: -

NELAP ACCREDITED TNI LABORATORY

National Environmental Laboratory Accreditation Program Kansas CERT # E-10219

Sample Project Name:	CCR Groundwater Monitering
Date Samples Received:	August 02, 2018 Time: 15:05 sample temp upon arrival at lab = 1°C - On Ice
Matrix:	Water
Lab Log Numbers:	AH02116-01 AH02116-02 AH02116-03 AH02116-04 AH02116-05 AH02116-06 AH02116-07
Work Order:	AH02116
Report #	AH02116-0822181335
EPA Lab ID#'s:	Stillwater OK00092 Tulsa OK00983 OKC OK00129 ICR OK 001
Oklahoma Certification:	Stillwater WasteWater, DEQ 8316/ Drinking Water, DEQ D9602 Tulsa WasteWater, DEQ 9905 / Drinking Water, DEQ D9901 Oklahoma City WasteWater DEQ 7202 / Drinking Water, DEQ D9937
Kansas Certification:	Stillwater NELAP CERT # E-10219 Oklahoma City NELAP CERT # E-10414
New Hampshire Cert.:	Oklahoma City Drinking Water NH ELAP Lab ID # 2072
Texas Certification:	Stillwater Drinking Water NELAP CERT # T105704533-14-1
Method Reference:	40 CFR 136, 141, and 261 Methods for Chemical Analysis of Water and Wastes EPA-600/4-79-020, March 1983. Test Methods for Evaluating Solid Wastes, SW-846, Final Update III. Standard Methods 1998 (20th Edition), Standard Methods 2005 (21st Edition) and Standard Methods 2011 (22nd Edition) for the Examination of Water and Wastewater.
Analysis Reference:	If qualifiers present in "Prep Info" or "Analysis Info", then analysis performed as follows: @= Tulsa Lab and * = OKC Lab. If no qualifiers present, then analysis performed at Stillwater Lab.

Accurate Environmental Laboratories certify that the test results performed at the Stillwater lab meet all requirements of NELAP. Any exceptions to this can be found in the report footer or Quality Control Section of the report.

This report is to only be replicated in its entirety.

Accurate Environmental sampling protocol was followed for any sampling performed by Accurate Field Services.

Sample: *MW-1 MK-126652* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 8/2/18 9:31 **Lab Log#** AH02116-01

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.498	08/11/18 12:38	08/13/18 16:25
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.418 pCi/L			08/11/18 12:38	08/13/18 16:25
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.539 pCi/L		0.297	08/11/18 12:38	08/15/18 06:25
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.314 pCi/L			08/11/18 12:38	08/15/18 06:25

Sample: *MW-2 MK-126653* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 8/2/18 10:00 **Lab Log#** AH02116-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.676	08/11/18 12:38	08/15/18 09:20
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.436 pCi/L			08/11/18 12:38	08/15/18 09:20
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.643 pCi/L		0.553	08/11/18 12:38	08/15/18 06:45
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.454 pCi/L			08/11/18 12:38	08/15/18 06:45

Sample: *MW-3 MK-126654* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 8/2/18 10:25 **Lab Log#** AH02116-03

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	0.829 pCi/L		0.587	08/11/18 12:38	08/15/18 09:20
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.425 pCi/L			08/11/18 12:38	08/15/18 09:20
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.391 pCi/L		0.297	08/11/18 12:38	08/15/18 06:45
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.293 pCi/L			08/11/18 12:38	08/15/18 06:45

Sample: *MW-4 MK-126655* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 8/2/18 10:51 **Lab Log#** AH02116-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	0.880 pCi/L		0.522	08/11/18 12:38	08/15/18 09:20
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.380 pCi/L			08/11/18 12:38	08/15/18 09:20
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.213 pCi/L		0.200	08/11/18 12:38	08/15/18 06:45
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.188 pCi/L			08/11/18 12:38	08/15/18 06:45

Sample: *MW-5 MK-126656* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 8/2/18 11:13 **Lab Log#** AH02116-05

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	0.887 pCi/L		0.538	08/11/18 12:38	08/15/18 09:20
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.382 pCi/L			08/11/18 12:38	08/15/18 09:20
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.708 pCi/L		0.327	08/11/18 12:38	08/15/18 06:45
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.354 pCi/L			08/11/18 12:38	08/15/18 06:45

Sample: *MW-5 DUP MK-126657* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 8/2/18 11:13 **Lab Log#** AH02116-06

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	0.809 pCi/L		0.540	08/11/18 12:38	08/15/18 09:20
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.400 pCi/L			08/11/18 12:38	08/15/18 09:20
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.250	08/11/18 12:38	08/15/18 06:45
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.106 pCi/L			08/11/18 12:38	08/15/18 06:45

Sample: *Blank Water MK-126658* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 8/2/18 11:30 **Lab Log#** AH02116-07

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.593	08/11/18 12:38	08/15/18 09:20
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.390 pCi/L			08/11/18 12:38	08/15/18 09:20
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.216	08/11/18 12:38	08/15/18 06:45
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.114 pCi/L			08/11/18 12:38	08/15/18 06:45

Notes and Definitions

***Alpha, Beta and Radium analysis performed under NELAC certification NJ OK001 and OK 9517

_BK	This compound was detected in the method blank above the PQL.
MCL	Analyte concentration may exceed Maximum Contaminant Limit (MCL) for EPA Primary or Secondary Drinking Water Regulations.
###	Analyte concentration may exceed regulatory limit.
PQL	Practical Quantitation Limit - the method reporting limit (MRL) adjusted for any dilutions or other changes made to the sample to deal with interferences/matrix effects
BPQL	Below Practical Quantitation Limit (if applicable).

The "Prep Date" of the QC analysis coincides with the characters of the appropriate QC Lab ID. (Example: 19 A 02 15 - BLK = 2019, Jan 2, Batch #15 - Blank)

Lab Manager

Quality Control Data

Blank Data

QC Lab #	Test Group	Test	Result		PQL	Flags
18H1672-BLK1	Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	0.444	pCi/L	0.294	_BK
18H1673-BLK1	Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL	pCi/L	0.045	

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

☐ RUSH Due Date

Chain of Custody

Accurate Environmental Labs

Client Name- OG&E Muskogee Power Plant

Project Name- CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix or Source (Refer. below)	Grab (G) or Comp (C)	Client I.D. / Sample Location or DEQ / EPA Location Code	Field Results (pH, Temp, Chlorine, ...) (note analysis & units)	Sample Preserv. & Container →	Cool <4°C	Cool <4°C	Cool <4°C	Cool <4°C	Cool <4°C
A1102116							Analysis Requested →	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals* (see comments)	Radium 226 and 228 combined	
-01	8/2/18	0931	GW	G	MW-1 MK- 126652		# of Container ↓	3	X	X	X	X
-02	8/2/18	1000	GW	G	MW-2 MK- 126653			3	X	X	X	X
-03	8/2/18	1025	GW	G	MW-3 MK- 126654			3	X	X	X	X
-04	8/2/18	1051	GW	G	MW-4 MK- 126655			3	X	X	X	X
-05	8/2/18	1113	GW	G	MW-5 MK- 126656			3	X	X	X	X

On-Site Info: Raw Alkalinity (TOC Raw) = _____ mg/L; Turbidity (E.Coli) = _____ ntu

Matrix Codes: DW = Drinkingwater; WW = Wastewater; SL = Sludge; O = Other

E.Coli Source: GWUDI-FS= Groundwater under direct influence of Flowing Stream; GWUDI-RL= Groundwater under direct influence of Reservoir/Lake

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

Field Instrument Calibration -

Meter Type	Standards	Final Read.	Date , Time	Initials

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility.

Signature: [signature]

Date/Time: 8-2-18 1215

Sampled By: Michael Jordan Company: Oklahoma Gas & Electric Sample Method:

Relinquished By:	Date/Time	Received By:	Date/Time
☐ Relinquished to Lab By: [signature]			
☐ Rel'd to Lab In Fridge By:	Date/Time 8-2-18 1505	Received at Lab By: [signature] Rec'd °C 1.8	Date/Time 8-3-18 1505

Reporting Requirements (standard 10-15 working days)	Compliance Reporting?	Yes or No (DMR, PWS,)	Oklahoma PWS ID #		RUSH Request (if available)	_____ (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

Mail Invoice To: Email invoice to:

Address: APVendorInvoices@oge.com

Bid # -

PO # - 4500883927

Phone #: (553-4079) Fax #: (405) 553-4063

www.accuratelabs.com (800) 516-5227

505 South Lowry Street, Stillwater, OK 74074 Phone: (405) 372-5300 Fax: (405) 372-5396

6558 E. 40th Street, Tulsa, OK 74074 Phone: (918) 663-5400 Fax: (918) 663-6300

12036 N. Pennsylvania, Oklahoma City, OK 73120 Phone: (405) 751-3132 Fax: (405) 751-3108

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

☐ RUSH Due Date

Chain of Custody

Accurate Environmental Labs

Client Name: OG&E Muskogee Power Plant

Project Name: CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix or Source (Refer. below)	Grab (G) or Comp. (C)	Client I.D. / Sample Location or DEQ / EPA Location Code	Field Results (pH, Temp, Chlorine, ...) (note analysis & units)	# of Containers	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals * (see comments)	Radium 226 and 228 cocombined	Mercury (EPA 245.1)	Fluoride (EPA 300)
					Sample Preserv. & Container →			Cool <4°C	Cool <4°C	Cool <4°C HNO3	Cool <4°C	Cool <4°C	Cool <4°C
AHC2116					Analysis Requested →								
-06	8/2/18	1113	GW	G	MW-5 DUP MK-12457		3	X	X	X	X	X	X
-07	8/2/18	1130	GW	G	Blank Water MK-12458		3	X	X	X	X	X	X

MAD COPY

On-Site Info: Raw Alkalinity (TOC Raw)= _____ mg/L Turbidity (E.Coli)= _____ stu

Matrix Codes: DW = Drinkingwater ; WW = Wastewater ; SL = Sludge ; O = Other

E.Coli Source: GWUDI-FS= Groundwater under direct influence of Flowing Stream GWUDI-RL= Groundwater under direct influence of Reservoir/Lake

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

Field Instrument Calibration -

Meter Type	Standards	Final Read.	Date , Time	Initials

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility. Signature: _____ Date/Time 8-2-18 1215

Sampled By: Michael Dolan Company: Oklahoma Gas & Electric Sample Method:

Relinquished By:	Date/Time	Received By:	Date/Time
☐ Relinquished to Lab By:			
☐ Held'd to Log-In Friday By:	Date/Time 8-2-18 1505	Received at Lab By: MDark	Rec'd °C 18 Date/Time 8-2-18 1505

Reporting Requirements (standard 10-15 working days) | Compliance Reporting? | Yes or No (DMR, PWS,) | Oklahoma PWS ID # | RUSH Request (if available) _____ (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

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12036 N. Pennsylvania, Oklahoma City, OK 73120 Phone: (405) 751-3132 Fax: (405) 751-3108

Sampling Log

Date: 8-23-18

Sample ID

Weather Conditions and Temperature: Partly Cloudy 74°

Field Samplers

Names: Michael Jordan, Jason Childress

Groundwater Level (ft below TOC): 12' TD: 20'3"

MW01

Sample Time: 9:40

Purge Volume: 4.4 gal **Field pH:** 6.97 (9:50)

Comments:

Groundwater Level (ft below TOC):: 5'9" TD: 20'1"

MW02

Sample Time: 1005

Purge Volume: 7.14 gal **Field pH:** 6.91 (10:13)

Comments:

Groundwater Level (ft below TOC):: 9'7" TD: 22'8"

MW03

Sample Time: 1025

Purge Volume: 6.63 gal **Field pH:** 6.95 (10:34)

Comments:

Groundwater Level (ft below TOC):: 12'1" TD: 22'4"

MW04

Sample Time: 11:02

Purge Volume: 5.1 gal **Field pH:** 6.69 (11:09)

Comments:

Groundwater Level (ft below TOC):: 11'5" TD: 21'7"

MW05

Sample Time: 11:21

Purge Volume: 5.1 gal **Field pH:** 6.78 (11:29)

Comments:

Additional Notes:

Groundwater Velocity **Date: 8/23/2018**

V=KI/n V = Groundwater velocity
K = Horizontal hydraulic conductivity (at site: 21.3767 µm/sec = 0.00007013'/sec = 7.013E-05)
I = Horizontal hydraulic gradient = dh/dl = difference in head/horizontal distance between wells)
n = Effective porosity = 0.29 to 0.41 (Sandy Clay) [Use 0.29]

MW1 - MW2:

dh =	0.75	MW1 =	509	12	497
dl =	1053.2	MW2 =	502	5.75	496.25
I = dh/dl =	0.000712115				

V = KI/n = 1.72209E-07 ft/sec = 0.052489 µm/sec

MW1 - MW3:

dh =	1.583	MW1 =	509	12	497
dl =	1390	MW3 =	505	9.583	495.417
I = dh/dl =	0.001138849				

V = KI/n = 2.75405E-07 ft/sec = 0.083943 µm/sec

MW5 - MW4:

dh =	-0.334	MW5 =	506	11.417	494.583
dl =	326.21	MW4 =	507	12.083	494.917
I = dh/dl =	-0.00102388				

V = KI/n = -2.47603E-07 ft/sec = -0.07547 µm/sec

MW5 - MW3:

dh =	-0.834	MW5 =	506	11.417	494.583
dl =	773.75	MW3 =	505	9.583	495.417
I = dh/dl =	-0.001077868				

V = KI/n = -2.60658E-07 ft/sec = -0.07945 µm/sec

Attachment 2 : Groundwater Velocity Calculation

Attachment 2 : Groundwater Flow Direction Field Notes

3-23-18

W1-MW2-MW3: HG: 0.00621 ft/ft
DOF: 142.62° clockwise from True North

W1-MW2-MW4: HG: 0.00341 ft/ft
DOF: 174.04° clockwise from True North

W1-MW2-MW5: HG: 0.00306 ft/ft
DOF: 188.87° clockwise from True North

W1-MW3-MW4: HG: 0.00133 ft/ft
DOF: 291.409° clockwise from True North

W1-MW3-MW5: HG: 0.00125 ft/ft
DOF: 289.62° clockwise from True North

W1-MW4-MW5: HG: 0.00117 ft/ft
DOF: 282.54° clockwise from True North

W2-MW3-MW4: HG: 0.00517 ft/ft
DOF: 46.84° clockwise from True North

W2-MW3-MW5: HG: 0.00582 ft/ft
DOF: 40.36° clockwise from True North

W2-MW4-MW5: HG: 0.0125 ft/ft
DOF: 34.61° clockwise from True North

W3-MW4-MW5: HG: 0.00107 ft/ft
DOF: 321.27° clockwise from True North

Accurate Environmental Laboratories

September 06, 2018

Client: OG&E - Muskogee

5501 Three Forks Road

Fort Gibson, OK 74434

Requested By: -

National Environmental Laboratory Accreditation Program
Kansas CERT # E-10219

Sample Project Name:	**CCR Groundwater Monitoring**
Date Samples Received:	**August 23, 2018** **Time: 15:08** **sample temp upon arrival at lab = 1°C - On Ice**
Matrix:	**Monitoring Well**
Lab Log Numbers:	AH23130-01 AH23130-02 AH23130-03 AH23130-04 AH23130-05 AH23130-06 AH23130-07
Work Order:	AH23130
Report #	AH23130-0906180837
EPA Lab ID#'s:	Stillwater OK00092 Tulsa OK00983 OKC OK00129 ICR OK 001
Oklahoma Certification:	Stillwater WasteWater, DEQ 8316/ Drinking Water, DEQ D9602 Tulsa WasteWater, DEQ 9905 / Drinking Water, DEQ D9901 Oklahoma City WasteWater DEQ 7202 / Drinking Water, DEQ D9937
Kansas Certification:	Stillwater NELAP CERT # E-10219 Oklahoma City NELAP CERT # E-10414
New Hampshire Cert.:	Oklahoma City Drinking Water NH ELAP Lab ID # 2072
Texas Certification:	Stillwater Drinking Water NELAP CERT # T105704533-14-1
Method Reference:	40 CFR 136, 141, and 261 Methods for Chemical Analysis of Water and Wastes EPA-600/4-79-020, March 1983. Test Methods for Evaluating Solid Wastes, SW-846, Final Update III. Standard Methods 1998 (20th Edition), Standard Methods 2005 (21st Edition) and Standard Methods 2011 (22nd Edition) for the Examination of Water and Wastewater.
Analysis Reference:	If qualifiers present in "Prep Info" or "Analysis Info", then analysis performed as follows: @= Tulsa Lab and * = OKC Lab. If no qualifiers present, then analysis performed at Stillwater Lab. Accurate Environmental Laboratories certify that the test results performed at the Stillwater lab meet all requirements of NELAP. Any exceptions to this can be found in the report footer or Quality Control Section of the report. This report is to only be replicated in its entirety. Accurate Environmental sampling protocol was followed for any sampling performed by Accurate Field Services.

Sample: *MW-1 MK-126678* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 8/23/18 9:40 **Lab Log#** AH23130-01

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	0.546 mg/L		0.500	08/24/18 07:45 BM	08/24/18 22:17 BM
Fluoride EPA 300.0	Fluoride	0.20 mg/L		0.10	08/24/18 07:45 BM	08/24/18 22:17 BM
Sulfate EPA 300.0	Sulfate	6.82 mg/L		0.500	08/24/18 07:45 BM	08/24/18 22:17 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	400.0 mg/L		25.0	08/24/18 10:30 BM	08/27/18 10:00 BM
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	08/24/18 16:30 PD	08/27/18 17:13 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	08/24/18 16:30 PD	08/27/18 17:13 PD
Barium (Ba) EPA 200.8	Barium	0.177 mg/L		0.005	08/24/18 16:30 PD	08/27/18 17:13 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	08/24/18 16:30 PD	08/27/18 17:13 PD
Boron (B) EPA 200.8	Boron	0.082 mg/L		0.025	08/24/18 16:30 PD	08/28/18 14:03 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	08/24/18 16:30 PD	08/27/18 17:13 PD
Calcium (Ca) EPA 200.7	Calcium	110 mg/L		0.50	08/24/18 16:30 PD	09/04/18 16:12 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	08/24/18 16:30 PD	08/27/18 17:13 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	08/24/18 16:30 PD	08/27/18 17:13 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	08/24/18 16:30 PD	08/27/18 17:13 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	08/24/18 16:30 PD	08/28/18 10:21 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	08/29/18 08:50 RW	08/29/18 14:58 rw
Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL mg/L		0.005	08/24/18 16:30 PD	08/27/18 17:13 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	08/24/18 16:30 PD	08/27/18 17:13 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	08/24/18 16:30 PD	08/27/18 17:13 PD

Sample: *MW-2 MK-126679* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 8/23/18 10:05 **Lab Log#** AH23130-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	36.2 mg/L		5.00	08/24/18 07:45 BM	08/24/18 23:26 BM
Fluoride EPA 300.0	Fluoride	0.22 mg/L		0.10	08/24/18 07:45 BM	08/24/18 23:03 BM
Sulfate EPA 300.0	Sulfate	105 mg/L		5.00	08/24/18 07:45 BM	08/24/18 23:26 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	631.0 mg/L		25.0	08/24/18 10:30 BM	08/27/18 10:00 BM
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	08/24/18 16:30 PD	08/27/18 17:18 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	08/24/18 16:30 PD	08/27/18 17:18 PD
Barium (Ba) EPA 200.8	Barium	0.255 mg/L		0.005	08/24/18 16:30 PD	08/27/18 17:18 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	08/24/18 16:30 PD	08/27/18 17:18 PD
Boron (B) EPA 200.8	Boron	0.221 mg/L		0.025	08/24/18 16:30 PD	08/28/18 14:09 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	08/24/18 16:30 PD	08/27/18 17:18 PD
Calcium (Ca) EPA 200.7	Calcium	136 mg/L		0.50	08/24/18 16:30 PD	09/04/18 16:16 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	08/24/18 16:30 PD	08/27/18 17:18 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	08/24/18 16:30 PD	08/27/18 17:18 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	08/24/18 16:30 PD	08/27/18 17:18 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	08/24/18 16:30 PD	08/28/18 10:25 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	08/29/18 08:50 RW	08/29/18 15:01 rw

Sample: **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 8/23/18 10:05 **Lab Log#** AH23130-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Molybdenum (Mo) EPA 200.8	Molybdenum	0.005 mg/L		0.005	08/24/18 16:30 PD	08/27/18 17:18 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	08/24/18 16:30 PD	08/27/18 17:18 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	08/24/18 16:30 PD	08/27/18 17:18 PD

Sample: *MW-3 MK-126680* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 8/23/18 10:25 **Lab Log#** AH23130-03

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	178 mg/L		12.5	08/24/18 07:45 BM	08/25/18 00:12 BM
Fluoride EPA 300.0	Fluoride	0.14 mg/L		0.10	08/24/18 07:45 BM	08/24/18 23:49 BM
Sulfate EPA 300.0	Sulfate	198 mg/L		12.5	08/24/18 07:45 BM	08/25/18 00:12 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	1156 mg/L		25.0	08/24/18 10:30 BM	08/27/18 10:00 BM
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	08/24/18 16:30 PD	08/27/18 17:23 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	08/24/18 16:30 PD	08/28/18 14:14 PD
Barium (Ba) EPA 200.8	Barium	0.327 mg/L		0.005	08/24/18 16:30 PD	08/27/18 17:23 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	08/24/18 16:30 PD	08/27/18 17:23 PD
Boron (B) EPA 200.8	Boron	0.072 mg/L		0.025	08/24/18 16:30 PD	08/28/18 14:14 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	08/24/18 16:30 PD	08/27/18 17:23 PD
Calcium (Ca) EPA 200.7	Calcium	233 mg/L		0.50	08/24/18 16:30 PD	09/04/18 16:19 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	08/24/18 16:30 PD	08/27/18 17:23 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	08/24/18 16:30 PD	08/27/18 17:23 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	08/24/18 16:30 PD	08/27/18 17:23 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	08/24/18 16:30 PD	08/28/18 10:30 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	08/29/18 08:50 RW	08/29/18 15:04 rw
Molybdenum (Mo) EPA 200.8	Molybdenum	0.005 mg/L		0.005	08/24/18 16:30 PD	08/27/18 17:23 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	08/24/18 16:30 PD	08/27/18 17:23 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	08/24/18 16:30 PD	08/27/18 17:23 PD

Sample: *MW-4 MK-126681* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 8/23/18 11:02 **Lab Log#** AH23130-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	131 mg/L		12.5	08/24/18 07:45 BM	08/25/18 02:07 BM
Fluoride EPA 300.0	Fluoride	0.16 mg/L		0.10	08/24/18 07:45 BM	08/25/18 00:35 BM
Sulfate EPA 300.0	Sulfate	351 mg/L		12.5	08/24/18 07:45 BM	08/25/18 02:07 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	1460 mg/L		25.0	08/24/18 10:30 BM	08/27/18 10:00 BM
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	08/24/18 16:30 PD	08/27/18 17:29 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	08/24/18 16:30 PD	08/28/18 14:19 PD
Barium (Ba) EPA 200.8	Barium	0.249 mg/L		0.005	08/24/18 16:30 PD	08/27/18 17:29 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	08/24/18 16:30 PD	08/27/18 17:29 PD
Boron (B) EPA 200.8	Boron	0.081 mg/L		0.025	08/24/18 16:30 PD	08/28/18 14:19 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	08/24/18 16:30 PD	08/27/18 17:29 PD

Sample: Location Code: PWSID#:

Collection Type: Grab Sample Time: 8/23/18 10:40 Lab Log# AH23130-06

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	08/24/18 16:30 PD	08/27/18 17:39 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	08/24/18 16:30 PD	08/27/18 17:39 PD
Barium (Ba) EPA 200.8	Barium	0.187 mg/L		0.005	08/24/18 16:30 PD	08/27/18 17:39 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	08/24/18 16:30 PD	08/27/18 17:39 PD
Boron (B) EPA 200.8	Boron	0.082 mg/L		0.025	08/24/18 16:30 PD	08/28/18 14:31 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	08/24/18 16:30 PD	08/27/18 17:39 PD
Calcium (Ca) EPA 200.7	Calcium	110 mg/L		0.50	08/24/18 16:30 PD	09/04/18 16:30 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	08/24/18 16:30 PD	08/27/18 17:39 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	08/24/18 16:30 PD	08/27/18 17:39 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	08/24/18 16:30 PD	08/27/18 17:39 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	08/24/18 16:30 PD	08/28/18 10:51 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	08/29/18 08:50 RW	08/29/18 15:13 rw
Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL mg/L		0.005	08/24/18 16:30 PD	08/27/18 17:39 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	08/24/18 16:30 PD	08/27/18 17:39 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	08/24/18 16:30 PD	08/27/18 17:39 PD

Sample: *MBlank Water MK-126684* Location Code: PWSID#:

Collection Type: Grab Sample Time: 8/23/18 11:35 Lab Log# AH23130-07

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	BPQL mg/L		0.500	08/24/18 07:45 BM	08/25/18 04:03 BM
Fluoride EPA 300.0	Fluoride	BPQL mg/L		0.10	08/24/18 07:45 BM	08/25/18 04:03 BM
Sulfate EPA 300.0	Sulfate	BPQL mg/L		0.500	08/24/18 07:45 BM	08/25/18 04:03 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	BPQL mg/L		25.0	08/24/18 10:30 BM	08/27/18 10:00 BM
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	08/24/18 16:30 PD	08/27/18 17:45 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	08/24/18 16:30 PD	08/27/18 17:45 PD
Barium (Ba) EPA 200.8	Barium	BPQL mg/L		0.005	08/24/18 16:30 PD	08/27/18 17:45 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	08/24/18 16:30 PD	08/27/18 17:45 PD
Boron (B) EPA 200.8	Boron	BPQL mg/L		0.025	08/24/18 16:30 PD	08/28/18 14:52 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	08/24/18 16:30 PD	08/27/18 17:45 PD
Calcium (Ca) EPA 200.7	Calcium	BPQL mg/L		0.10	08/24/18 16:30 PD	09/04/18 15:36 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	08/24/18 16:30 PD	08/27/18 17:45 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	08/24/18 16:30 PD	08/27/18 17:45 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	08/24/18 16:30 PD	08/27/18 17:45 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	08/24/18 16:30 PD	08/28/18 10:56 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	08/29/18 08:50 RW	08/29/18 15:16 rw
Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL mg/L		0.005	08/24/18 16:30 PD	08/27/18 17:45 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	08/24/18 16:30 PD	08/27/18 17:45 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	08/24/18 16:30 PD	08/27/18 17:45 PD

Notes and Definitions

#52	Analyte recoveries are outside of acceptance limits for the matrix spike sample. This failure does not invalidate data reported.
MCL	Analyte concentration may exceed Maximum Contaminant Limit (MCL) for EPA Primary or Secondary Drinking Water Regulations.
###	Analyte concentration may exceed regulatory limit.
PQL	Practical Quantitation Limit - the method reporting limit (MRL) adjusted for any dilutions or other changes made to the sample to deal with interferences/matrix effects
BPQL	Below Practical Quantitation Limit (if applicable).

The "Prep Date" of the QC analysis coincides with the characters of the appropriate QC Lab ID. (Example: 19 A 02 15 - BLK = 2019, Jan 2, Batch #15 - Blank)

Lab Manager

Quality Control Data

Blank Data

QC Lab #	Test Group	Test	Result		PQL	Flags
18H2406-BLK1	Chloride EPA 300.0	Chloride	BPQL	mg/L	0.500	
18H2406-BLK1	Fluoride EPA 300.0	Fluoride	BPQL	mg/L	0.10	
18H2406-BLK1	Sulfate EPA 300.0	Sulfate	BPQL	mg/L	0.500	
18H2440-BLK1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	BPQL	mg/L	25.0	
18H2468-BLK1	Antimony (Sb) EPA 200.8	Antimony	BPQL	mg/L	0.005	
18H2468-BLK1	Arsenic (As) EPA 200.8	Arsenic	BPQL	mg/L	0.0005	
18H2468-BLK1	Barium (Ba) EPA 200.8	Barium	BPQL	mg/L	0.005	
18H2468-BLK1	Beryllium (Be) EPA 200.8	Beryllium	BPQL	mg/L	0.001	
18H2468-BLK1	Boron (B) EPA 200.8	Boron	BPQL	mg/L	0.025	
18H2468-BLK1	Cadmium (Cd) EPA 200.8	Cadmium	BPQL	mg/L	0.0010	
18H2470-BLK1	Calcium (Ca) EPA 200.7	Calcium	BPQL	mg/L	0.10	
18H2468-BLK1	Chromium (Cr) EPA 200.8	Chromium	BPQL	mg/L	0.010	
18H2468-BLK1	Cobalt (Co) EPA 200.8	Cobalt	BPQL	mg/L	0.010	
18H2468-BLK1	Lead (Pb) EPA 200.8	Lead	BPQL	mg/L	0.0005	
18H2473-BLK1	Lithium (Li) EPA 6020A	Lithium	BPQL	mg/L	0.050	
18H2929-BLK1	Mercury (Hg) EPA 245.1	Mercury	BPQL	ug/L	0.050	
18H2468-BLK1	Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL	mg/L	0.005	
18H2468-BLK1	Selenium (Se) EPA 200.8	Selenium	BPQL	mg/L	0.0050	
18H2468-BLK1	Thallium (Tl) EPA 200.8	Thallium	BPQL	mg/L	0.0005	

Duplicate Sample Data

QC Lab #	Test Group	Test Name	Source	Dup Result	Samp Result	% RPD	RPD Limit	Flags
18H2406-DUP1	Chloride EPA 300.0	Chloride	AH23130-07	BPQL	BPQL	UDL	20	
18H2406-DUP1	Fluoride EPA 300.0	Fluoride	AH23130-07	BPQL	BPQL	UDL	20	
18H2406-DUP1	Sulfate EPA 300.0	Sulfate	AH23130-07	BPQL	BPQL	UDL	20	

Quality Control Data

Laboratory Control Sample Data

Lab QC#	Test Group	Test Name	LCS Result	Spike Level	Units	% Rec.	Control Limits	Flags
18H2406-BS1	Chloride EPA 300.0	Chloride	2.89	3.000	mg/L	96	90 - 110	
18H2406-BS1	Fluoride EPA 300.0	Fluoride	1.81	2.000	mg/L	90	90 - 110	
18H2406-BS1	Sulfate EPA 300.0	Sulfate	14.5	15.00	mg/L	97	90 - 110	
18H2440-BS1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	997.0	1000	mg/L	100	80 - 120	
18H2468-BS1	Antimony (Sb) EPA 200.8	Antimony	0.094	0.1000	mg/L	94	85 - 115	
18H2468-BS1	Arsenic (As) EPA 200.8	Arsenic	0.102	0.1000	mg/L	102	85 - 115	
18H2468-BS1	Barium (Ba) EPA 200.8	Barium	0.092	0.1000	mg/L	92	85 - 115	
18H2468-BS1	Beryllium (Be) EPA 200.8	Beryllium	0.095	0.1000	mg/L	95	85 - 115	
18H2468-BS1	Boron (B) EPA 200.8	Boron	0.095	0.1000	mg/L	95	85 - 115	
18H2468-BS1	Cadmium (Cd) EPA 200.8	Cadmium	0.0919	0.1000	mg/L	92	85 - 115	
18H2468-BS1	Chromium (Cr) EPA 200.8	Chromium	0.100	0.1000	mg/L	100	85 - 115	
18H2468-BS1	Cobalt (Co) EPA 200.8	Cobalt	0.096	0.1000	mg/L	96	85 - 115	
18H2468-BS1	Lead (Pb) EPA 200.8	Lead	0.0925	0.1000	mg/L	92	85 - 115	
18H2468-BS1	Molybdenum (Mo) EPA 200.8	Molybdenum	0.094	0.1000	mg/L	94	85 - 115	
18H2468-BS1	Selenium (Se) EPA 200.8	Selenium	0.105	0.1000	mg/L	105	85 - 115	
18H2468-BS1	Thallium (Tl) EPA 200.8	Thallium	0.1037	0.1000	mg/L	104	85 - 115	
18H2470-BS1	Calcium (Ca) EPA 200.7	Calcium	2.00	2.000	mg/L	100	85 - 115	
18H2473-BS1	Lithium (Li) EPA 6020A	Lithium	1.10	1.000	mg/L	110	85 - 115	
18H2929-BS1	Mercury (Hg) EPA 245.1	Mercury	1.92	1.667	ug/L	115	85 - 115	

Matrix Spike Data

QC Lab #	Test Group	Test Name	Source Sample	Sample Result	Units	Spike Result	Spike Level	% Rec.	Acceptance Limits	Flags
18H2406-MS1	Chloride EPA 300.0	Chloride	AH23130-07	BPQL	mg/L	3.26	3.334	98	80 - 120	
18H2406-MS1	Fluoride EPA 300.0	Fluoride	AH23130-07	BPQL	mg/L	3.08	3.334	92	80 - 120	
18H2406-MS1	Sulfate EPA 300.0	Sulfate	AH23130-07	BPQL	mg/L	3.01	3.334	90	80 - 120	
18H2470-MS1	Calcium (Ca) EPA 200.7	Calcium	AH23130-07	0.03	mg/L	2.00	2.000	98	85 - 115	
18H2473-MS1	Lithium (Li) EPA 6020A	Lithium	AH23130-01	BPQL	mg/L	1.10	1.000	110	85 - 115	
18H2929-MS1	Mercury (Hg) EPA 245.1	Mercury	AH23130-03	BPQL	ug/L	1.39	1.667	83	85 - 115	#52

Matrix Spike Duplicate Data

QC Lab #	Test Group	Test Name	Sample Result	Spike Result	Spike Level	Units	% Rec.	Rec. Limits	% RPD	RPD Limit	Flags
18H2470-MSD1	Calcium (Ca) EPA 200.7	Calcium	0.03	2.03	2.000	mg/L	101	85-115	2	20	
18H2473-MSD1	Lithium (Li) EPA 6020A	Lithium	BPQL	1.14	1.000	mg/L	114	85-115	3	20	
18H2929-MSD1	Mercury (Hg) EPA 245.1	Mercury	BPQL	1.41	1.667	ug/L	85	85-115	1	20	

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

RUSH Due Date

Accurate Environmental Labs

Chain of Custody

Client Name: OG&E Muskogee Power Plant

Project Name: CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix of Source	Grab/Comp	Client I.D./Sample Location		Field Results			Number of Containers	Boron, Calcium, Chloride, Fluoride, Sulfate (Cool <4°C)	TDS (Cool <4°C)	Metals* (see comments) (Cool <4°C HNO3)	Radium 226 and 228 (Cool <4°C)	Mercury (EPA 245.1) (Cool <4°C)	Fluoride (EPA 300) (Cool <4°C)
AH23130 -01	8/23/18	0940	GW	G	MW-1	MK-126678				3	X	X	X		X	X
-02	8/23/18	1005	GW	G	MW-2	MK-126679				3	X	X	X		X	X
-03	8/23/18	1025	GW	G	MW-3	MK-126680				3	X	X	X		X	X
-04	8/23/18	1102	GW	G	MW-4	MK-126681				3	X	X	X		X	X
-05	8/23/18	1121	GW	G	MW-5	MK-126682				3	X	X	X		X	X

On-Site Info: Raw Alkalinity (TOC Raw)= ______ mg/L Turbidity (E.Coli)= ______ ntu

Matrix Codes: DW = Drinking water ; WW = Wastewater ; SL = Sludge ; O = Other

E.Coli Source: GWUDI-FS= Groundwater under direct influence of Flowing Stream GWUDI-RL= Groundwater under direct influence of Reservoir/Lake

Field Instrument Calibration				
Meter Type	Standards	Final Read.	Date , Time	Initials

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility.

Signature: [signature] Date/Time: 8-23-18 1142

Sampled By: Michael Jordan

Company: Oklahoma Gas & Electric

Sample Method: Grab

Relinquished By: Date/Time: Received By: Date/Time:

Relinquished to Lab By: / Reln'd to Log-In Fridge By: [signature] Date/Time: 8-23-18 1508 Received at Lab By: [signature] Rec'd °C: 1.8 Date/Time: 8-23-18 1508

Reporting Requirements (Standard 5-15 working days) | Compliance Reporting? Yes or No (DMR, PWS,) | Oklahoma PWS ID.# ______ | RUSH Request (if available) ______ (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone#: (405) 553-4079 Fax#: (405) 553-4063

Email:

Mail Invoice To: Email invoice to:

Address: APVendorInvoices@oge.com

Bid # -

PO # - 4500883927

Phone#: (553-4079) Fax#: (405) 553-4063

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

☐ RUSH Due Date

Chain of Custody

Accurate Environmental Labs

Client Name: OG&E Muskogee Power Plant

Project Name: CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix (see codes)	Grab (G) or Comp (C)	Client Lab Sample Location ID or Blank or EPA Location Code	Field Results (pH, Temp, Chlorine, Fecal analysis & initials)			Sample Temp. & Condition upon Receipt	Cool <4°C	Cool <4°C	Cool <4°C HNO3	Cool <4°C		Cool <4°C	Cool <4°C
									Analysis Requested →	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals* (see comments)	Radium 226 and 228 Combined		Mercury (EPA 245.1)	Fluoride (EPA 300)
AH23130									# of Containers Submitted							
-06	8/23/18	1040	GW	G	MW-1 DUP MK-126683				3	X	X	X	X		X	X
-07	8/23/18	1135	GW	G	Blank Water MK-126684				3	X	X	X	X		X	X

On-Site Info: Raw Alkalinity (TOC Raw)= _____ mg/L Turbidity (E.Coli)= _____ ntu

Matrix Codes: DW = Drinking water; WW = Wastewater; SL = Sludge; O = Other _____

E.Coli Source: GWUDI-WS= Groundwater under direct influence of Flowing Stream GWUDI-RL= Groundwater under direct influence of Reservoir/Lake

Field Instrument Calibration

Meter Type	Standards	Final Read.	Date , Time	Initials

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility. Signature: _____ Date/Time: 8-23-18 1142

Sampled By: Michael Jordan Company: Oklahoma Gas & Electric Sample Method: grab

Relinquished By:	Date/Time	Received By:	Date/Time
☐ Relinquished to Lab By:			
☐ Rcld'd to Log-In Fridge By:	Date/Time 8-23-18 1500	Received at Lab By:	Rec'd °C 1.8 Date/Time 8-23-18 1525

Reporting Requirements (Standard TAT working days): Compliance Reporting? Yes or No (DMR, PWS,) Oklahoma PWS ID # _____ RUSH Request (if available) _____ (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

Mail Invoice To: Email invoice to:

Address: APVendorInvoices@oge.com

Bid # -

PO # - 4500883927

Phone #: (553-4079) Fax #: (405) 553-4063

www.accuratelabs.com (800) 516-5227

505 South Lowry Street, Stillwater, OK 74074 Phone: (405) 372-5300 Fax: (405) 372-5396

6558 E. 40th Street, Tulsa, OK 74074 Phone: (918) 663-5400 Fax: (918) 663-6300

12036 N. Pennsylvania, Oklahoma City, OK 73120 Phone: (405) 751-3132 Fax: (405) 751-3108

Accurate Environmental Laboratories

September 27, 2018

Client: OG&E - Muskogee

5501 Three Forks Road

Fort Gibson, OK 74434

Requested By: -

National Environmental Laboratory Accreditation Program
Kansas CERT # E-10219

Sample Project Name:	CCR Groundwater Monitoring
Date Samples Received:	August 23, 2018 Time: 15:08 sample temp upon arrival at lab = 1°C - On Ice
Matrix:	Ground Water
Lab Log Numbers:	AH23132-01 AH23132-02 AH23132-03 AH23132-04 AH23132-05 AH23132-06 AH23132-07
Work Order:	AH23132
Report #	AH23132-0927180831
EPA Lab ID#'s:	Stillwater OK00092 Tulsa OK00983 OKC OK00129 ICR OK 001
Oklahoma Certification:	Stillwater WasteWater, DEQ 8316/ Drinking Water, DEQ D9602 Tulsa WasteWater, DEQ 9905 / Drinking Water, DEQ D9901 Oklahoma City WasteWater DEQ 7202 / Drinking Water, DEQ D9937
Kansas Certification:	Stillwater NELAP CERT # E-10219 Oklahoma City NELAP CERT # E-10414
New Hampshire Cert.:	Oklahoma City Drinking Water NH ELAP Lab ID # 2072
Texas Certification:	Stillwater Drinking Water NELAP CERT # T105704533-14-1
Method Reference:	40 CFR 136, 141, and 261 Methods for Chemical Analysis of Water and Wastes EPA-600/4-79-020, March 1983. Test Methods for Evaluating Solid Wastes, SW-846, Final Update III. Standard Methods 1998 (20th Edition), Standard Methods 2005 (21st Edition) and Standard Methods 2011 (22nd Edition) for the Examination of Water and Wastewater.
Analysis Reference:	If qualifiers present in "Prep Info" or "Analysis Info", then analysis performed as follows: @= Tulsa Lab and * = OKC Lab. If no qualifiers present, then analysis performed at Stillwater Lab. Accurate Environmental Laboratories certify that the test results performed at the Stillwater lab meet all requirements of NELAP. Any exceptions to this can be found in the report footer or Quality Control Section of the report. This report is to only be replicated in its entirety. Accurate Environmental sampling protocol was followed for any sampling performed by Accurate Field Services.

Sample: *MW-1 MK-126678* Location Code: PWSID#:

Collection Type: Grab Sample Time: 8/23/18 9:40 Lab Log# AH23132-01

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.754	08/29/18 12:49	09/05/18 11:48
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.531 pCi/L			08/29/18 12:49	09/05/18 11:48
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.223 pCi/L		0.209	08/29/18 14:29	09/06/18 00:44
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.231 pCi/L			08/29/18 14:29	09/06/18 00:44

Sample: *MW-2 MK-126679* Location Code: PWSID#:

Collection Type: Grab Sample Time: 8/23/18 10:05 Lab Log# AH23132-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.848	08/29/18 12:49	09/05/18 11:48
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.588 pCi/L			08/29/18 12:49	09/05/18 11:48
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.267 pCi/L		0.208	08/29/18 14:29	09/06/18 01:14
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.246 pCi/L			08/29/18 14:29	09/06/18 01:14

Sample: *MW-3 MK-126680* Location Code: PWSID#:

Collection Type: Grab Sample Time: 8/23/18 10:25 Lab Log# AH23132-03

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	2.09 pCi/L		0.933	08/29/18 12:49	09/20/18 09:28
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.685 pCi/L			08/29/18 12:49	09/20/18 09:28
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.488 pCi/L		0.208	08/29/18 14:29	09/06/18 01:45
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.314 pCi/L			08/29/18 14:29	09/06/18 01:45

Sample: *MW-4 MK-126681* Location Code: PWSID#:

Collection Type: Grab Sample Time: 8/23/18 11:02 Lab Log# AH23132-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	2.03 pCi/L		0.874	08/29/18 12:49	09/20/18 09:28
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.661 pCi/L			08/29/18 12:49	09/20/18 09:28
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.488 pCi/L		0.208	08/29/18 14:29	09/06/18 02:15
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.313 pCi/L			08/29/18 14:29	09/06/18 02:15

Sample: *MW-5 MK-126682* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 8/23/18 11:21 **Lab Log#** AH23132-05

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.701	08/29/18 12:49	09/20/18 09:28
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.402 pCi/L			08/29/18 12:49	09/20/18 09:28
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.221 pCi/L		0.207	08/29/18 14:29	09/06/18 02:45
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.230 pCi/L			08/29/18 14:29	09/06/18 02:45

Sample: *MW-1 DUP MK-126683* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 8/23/18 10:40 **Lab Log#** AH23132-06

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.798	08/29/18 12:49	09/20/18 09:28
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.505 pCi/L			08/29/18 12:49	09/20/18 09:28
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.310 pCi/L		0.207	08/29/18 14:29	09/06/18 03:16
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.260 pCi/L			08/29/18 14:29	09/06/18 03:16

Sample: *Blank Water MK-126684* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 8/23/18 11:35 **Lab Log#** AH23132-07

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.684	08/29/18 12:49	09/20/18 09:28
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.434 pCi/L			08/29/18 12:49	09/20/18 09:28
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.224 pCi/L		0.210	08/29/18 14:29	09/06/18 03:46
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.233 pCi/L			08/29/18 14:29	09/06/18 03:46

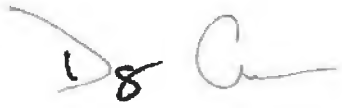
Notes and Definitions

***Alpha, Beta and Radium analysis performed under NELAC certification NJ OK001 and OK 9517.

MCL	Analyte concentration may exceed Maximum Contaminant Limit (MCL) for EPA Primary or Secondary Drinking Water Regulations.
###	Analyte concentration may exceed regulatory limit.
PQL	Practical Quantitation Limit - the method reporting limit (MRL) adjusted for any dilutions or other changes made to the sample to deal with interferences/matrix effects
BPQL	Below Practical Quantitation Limit (if applicable).

The "Prep Date" of the QC analysis coincides with the characters of the appropriate QC Lab ID. (Example: 19 A 02 15 - BLK = 2019, Jan 2, Batch #15 - Blank)

Lab Manager



Quality Control Data

Blank Data

QC Lab #	Test Group	Test	Result		PQL	Flags
18I2681-BLK1	Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL	pCi/L	0.470	
18I2682-BLK1	Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL	pCi/L	0.110	

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

☐ RUSH Due Date

Chain of Custody

Accurate Environmental Labs

Client Name- OG&E Muskogee Power Plant

Project Name- CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix or Source (Refer. below)	Grab (G) or Comp (C)	Client I.D. / Sample Location or DEQ / EPA Location Code	Field Results (pH, Temp, Chlorine, ...) (note analysis & units)	# of Container	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals* (see comments)	Radium 226 and 228 combined	Mercury (EPA 245.1)	Fluoride (EPA 300)
Sample Preserv. & Container →								Cool <4°C	Cool <4°C	Cool <4°C HNO3	Cool <4°C	Cool <4°C	Cool <4°C
Analysis Requested →													
AH2352													
-01	8/23/18	0940	GW	G	MW-1 MK-126678		3	X	X	X	X	X	X
-02	8/23/18	1005	GW	G	MW-2 MK-126679		3	X	X	X	X	X	X
-03	8/23/18	1025	GW	G	MW-3 MK-126680		3	X	X	X	X	X	X
-04	8/23/18	1102	GW	G	MW-4 MK-126681		3	X	X	X	X	X	X
-05	8/23/18	1121	GW	G	MW-5 MK-126682		3	X	X	X	X	X	X

On-Site Info: *Raw Alkalinity (TOC Raw)=* _____ *mg/L* *Turbidity (E.Coli)=* _____ *ntu*

Matrix Codes DW = *Drinkingwater* ; WW = *Wastewater* ; SL = *Sludge* ; O = *Other*

E.Coli Source GWUDI-FS= *Groundwater under direct influence of Flowing Stream* GWUDI-RL= *Groundwater under direct influence of Reservoir/Lake*

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

Field Instrument Calibration -

Meter Type	Standards	Final Read.	Date , Time	Initials

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: *I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility.* Signature: _____ Date/Time: 8-23-18 1142

Sampled By: Michael Jordan Company: Oklahoma Gas & Electric Sample Method: Grab

Relinquished By:	Date/Time	Received By:	Date/Time
☐ Relinquished to Lab By:			
☐ Rel'd to Log-In Fridge By:	Date/Time 8-23-18 1542	Received at Lab By:	Rec'd °C 1.0 Date/Time 8/23/18 1542

Reporting Requirements (standard 10-15 working days) ☐ Compliance Reporting? *Yes or No* (DMR, PWS,) *Oklahoma* PWS ID # _____ *RUSH Request* (if available) _____ (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: *5501 Three Forks Road, Ft. Gibson, OK 74434*

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

Mail Invoice To: Email invoice to:

Address: APVendorInvoices@oge.com

Bid # -

PO # - 4500883927

Phone #: (553-4079) Fax #: (405) 553-4063

www.accuratelabs.com (800) 516-5227

505 South Lowry Street, Stillwater, OK 74074 Phone: (405) 372-5300 Fax: (405) 372-5396

6558 E. 40th Street, Tulsa, OK 74074 Phone: (918) 663-5400 Fax: (918) 663-6300

12036 N. Pennsylvania, Oklahoma City, OK 73120 Phone: (405) 751-3132 Fax: (405) 751-3108

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

☐ RUSH Due Date

Chain of Custody

Accurate Environmental Labs

Client Name- OG&E Muskogee Power Plant

Project Name- CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix or Source (Refer. below)	Grab (G) or Comp (C)	Client I.D. / Sample Location or DEQ / EPA Location Code	Field Results (pH, Temp, Chlorine, ...) (note analysis & units) ( ) ( ) ( )	# of Container ↓	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals* (see comments)	Radium 226 and 228 combined	Mercury (EPA 245.1)	Fluoride (EPA 300)
AH23132							Sample Preserv. & Container →	Cool <4°C	Cool <4°C	Cool <4°C HNO3	Cool <4°C	Cool <4°C	Cool <4°C
-06	8/23/18	1040	GW	G	MW-1 DUP MK-126683		3	X	X	X	X	X	X
-07	8/23/18	1135	GW	G	Blank Water MK-126684		3	X	X	X	X	X	X

Analysis Requested →

On-Site Info: Raw Alkalinity (TOC Raw)= _____ mg/L Turbidity (E.Coli)= _____ ntu

Matrix Codes: DW = Drinkingwater ; WW = Wastewater ; SL = Sludge ; O = Other _____

E.Coli Source: GWUDI-FS= Groundwater under direct influence of Flowing Stream GWUDI-RL= Groundwater under direct influence of Reservoir/Lake

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

Field Instrument Calibration -

Meter Type	Standards	Final Read.	Date , Time	Initials

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

-- Hazardous samples will be returned to client or will be disposed of at a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility. Signature: _____ Date/Time 8-23-18 1142

Sampled By: Michael Jordan Company: Oklahoma Gas & Electric Sample Method: Grab

Relinquished By:	Date/Time	Received By:	Date/Time
☐ Relinquished to Lab By:			
☐ Rcv'd to Log-In Fridge By:	Date/Time 8-23-18 1500	Received at Lab By:	Rec'd °C 1.8 Date/Time 8-23-18 1532

Reporting Requirements (standard 10-15 working days)	Compliance Reporting?	Yes or No (DMR, PWS,)	Oklahoma PWS ID #	RUSH Request (if available)	_____ (Working Days)

Mail Report To: SmithsCA@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

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12036 N. Pennsylvania, Oklahoma City, OK 73120 Phone: (405) 751-3132 Fax: (405) 751-3108

Accurate Environmental Laboratories

October 24, 2018

Client: OG&E - Muskogee

5501 Three Forks Road

Fort Gibson, OK 74434

Requested By: -

National Environmental Laboratory Accreditation Program Kansas CERT # E-10219

9/12/18

Sample Project Name:	CCR Groundwater Monitoring
Date Samples Received:	September 12, 2018 Time: 16:30 sample temp upon arrival at lab = 3°C - On Ice
Matrix:	Ground Water
Lab Log Numbers:	**AI12183-01 AI12183-02 AI12183-03 AI12183-04 AI12183-05 AI12183-06 AI12183-07**
Work Order:	AI12183
Report #	AI12183-1024181052
EPA Lab ID#'s:	**Stillwater OK00092 Tulsa OK00983 OKC OK00129 ICR OK 001**
Oklahoma Certification:	Stillwater WasteWater, DEQ 8316/ Drinking Water, DEQ D9602 Tulsa WasteWater, DEQ 9905 / Drinking Water, DEQ D9901 Oklahoma City WasteWater DEQ 7202 / Drinking Water, DEQ D9937
Kansas Certification:	Stillwater NELAP CERT # E-10219 Oklahoma City NELAP CERT # E-10414
New Hampshire Cert.:	Oklahoma City Drinking Water NH ELAP Lab ID # 2072
Texas Certification:	Stillwater Drinking Water NELAP CERT # T105704533-14-1
Method Reference:	40 CFR 136, 141, and 261 Methods for Chemical Analysis of Water and Wastes EPA-600/4-79-020, March 1983. Test Methods for Evaluating Solid Wastes, SW-846, Final Update III. Standard Methods 1998 (20th Edition), Standard Methods 2005 (21st Edition) and Standard Methods 2011 (22nd Edition) for the Examination of Water and Wastewater.
Analysis Reference:	If qualifiers present in "Prep Info" or "Analysis Info", then analysis performed as follows: @= Tulsa Lab and * = OKC Lab. If no qualifiers present, then analysis performed at Stillwater Lab. Accurate Environmental Laboratories certify that the test results performed at the Stillwater lab meet all requirements of NELAP. Any exceptions to this can be found in the report footer or Quality Control Section of the report. This report is to only be replicated in its entirety. Accurate Environmental sampling protocol was followed for any sampling performed by Accurate Field Services.

Sample: *MW-1 MK-127601* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 9/12/18 10:51 **Lab Log#** AI12183-01

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.742	09/19/18 14:46	10/10/18 10:45
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.628 pCi/L			09/19/18 14:46	10/10/18 10:45
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.343 pCi/L		0.191	09/19/18 14:46	09/21/18 18:20
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.220 pCi/L			09/19/18 14:46	09/21/18 18:20

Sample: *MW-2 MK-127602* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 9/12/18 11:10 **Lab Log#** AI12183-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.868	09/19/18 14:46	10/10/18 10:45
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.573 pCi/L			09/19/18 14:46	10/10/18 10:45
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.226	09/19/18 14:46	09/21/18 18:20
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.112 pCi/L			09/19/18 14:46	09/21/18 18:20

Sample: *MW-3 MK-127603* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 9/12/18 11:30 **Lab Log#** AI12183-03

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.837	09/19/18 14:46	10/10/18 10:45
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.618 pCi/L			09/19/18 14:46	10/10/18 10:45
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.228	09/19/18 14:46	09/21/18 18:20
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.187 pCi/L			09/19/18 14:46	09/21/18 18:20

Sample: *MW-4 MK-127604* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 9/12/18 11:54 **Lab Log#** AI12183-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	1.38 pCi/L		1.13	09/19/18 14:46	10/10/18 10:45
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.969 pCi/L			09/19/18 14:46	10/10/18 10:45
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.507 pCi/L		0.286	09/19/18 14:46	09/21/18 18:20
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.294 pCi/L			09/19/18 14:46	09/21/18 18:20

Sample: *MW-5 MK-127605* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 9/12/18 12:10 **Lab Log#** AI12183-05

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	1.62 pCi/L		1.19	09/19/18 14:46	10/10/18 10:45
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	1.06 pCi/L			09/19/18 14:46	10/10/18 10:45
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.643 pCi/L		0.266	09/19/18 14:46	09/21/18 18:20
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.329 pCi/L			09/19/18 14:46	09/21/18 18:20

Sample: *MW-2 DUP MK-127606* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 9/12/18 11:10 **Lab Log#** AI12183-06

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	2.02 pCi/L		1.27	09/19/18 14:46	10/10/18 10:45
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	1.02 pCi/L			09/19/18 14:46	10/10/18 10:45
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.372	09/19/18 14:46	09/21/18 18:20
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.296 pCi/L			09/19/18 14:46	09/21/18 18:20

Sample: *Blank Water MK-127607* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 9/12/18 12:30 **Lab Log#** AI12183-07

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.852	09/24/18 10:03	10/10/18 10:45
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.509 pCi/L			09/24/18 10:03	10/10/18 10:45
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.300	09/19/18 10:03	09/25/18 13:37
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.079 pCi/L			09/19/18 10:03	09/25/18 13:37

Notes and Definitions

***Alpha, Beta and Radium analysis performed under NELAC certification NJ OK001 and OK 9517.

MCL	Analyte concentration may exceed Maximum Contaminant Limit (MCL) for EPA Primary or Secondary Drinking Water Regulations.
###	Analyte concentration may exceed regulatory limit.
PQL	Practical Quantitation Limit - the method reporting limit (MRL) adjusted for any dilutions or other changes made to the sample to deal with interferences/matrix effects
BPQL	Below Practical Quantitation Limit (if applicable).

The "Prep Date" of the QC analysis coincides with the characters of the appropriate QC Lab ID. (Example: 19 A 02 15 - BLK = 2019, Jan 2, Batch #15 - Blank)

Lab Manager

Quality Control Data

Blank Data

QC Lab #	Test Group	Test	Result		PQL	Flags
18J2424-BLK1	Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL	pCi/L	0.424	
18J2430-BLK1	Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL	pCi/L	0.053	

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

☐ RUSH Due Date

Chain of Custody

Accurate Environmental Labs

Client Name: OG&E Muskogee Power Plant

Project Name: CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix or Sludge (solid, sludge)	Grab (G) or Comp (C)	Client Lab / Sample Location ID / DEQ/EPA Location Code	Field Results (pH, Temp, Chlorine, time analysis & analyst)	Sample Preserv. & Container	Radium 226 and 228 combined
AL12183							Cool < 4°C	
-01	9/12/18	10:61 am	GW		MW-1 MK- 127601		1	x
-02	9/12/18	11:10 am	GW		MW-2 MK- 127602		1	x
-03	9/12/18	11:30 am	GW		MW-3 MK- 127603		1	x
-04	9/12/18	11:51 am	GW		MW-4 MK- 127604		1	x
-05	9/12/18	12:00 pm	GW		MW-5 MK- 127605		1	x

On-Site Info: Raw Alkalinity (TOC Raw)= _____ mg/L Turbidity (E.Coli)= _____ ntu

Matrix Codes: DW = Drinking Water WW = Wastewater SL = Sludge O = Other_Groundwater

E.Coli Source: GWUDI-FS= Groundwater under direct influence of Flowing Stream GWUDI-RL= Groundwater under direct influence of Reservoir/Lake

Field Instrument Calibration

Meter Type	Standards	Final Read.	Date , Time	Initials

Comments

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate.--

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility. Signature: _____ Date/Time: 9/12/18 1730

Sampled By: Micheal Jordan Company: Oklahoma Gas & Electric Sample Method: Grab

Relinquished By:	Date/Time	Received By:	Date/Time
	9/14/18 4:30		
☐ Relinquished to Lab By:	Date/Time	Received at Lab By:	Rec'd °C 3.9 / Date/Time 9-12-18 16:30
☐ Rel'd to Log-In Fridge By:			

Reporting Requirements (standard 10-15 working days)	Compliance Reporting?	Yes or No (DMR, PWS,)	Oklahoma PWS ID #		RUSH Request (if available)	_____ (Working Days)

Mail Report: Smithsca@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

Mail Invoice: Email invoice to:

Address: APVendorInvoices@oge.com

Bid # -

PO # - 4500883927

Phone #: 405-553-4079 Fax #: 405-553-4063

www.accuratelabs.com (800) 516-9227

505 South Lowry Street Stillwater, OK 74074 Phone: (405) 372-5300 Fax: (405) 372-5396

3910 E. 51st Street Tulsa, OK 74135 Phone: (918) 663-5400 Fax: (918) 663-6300

12036 N. Pennsylvania Oklahoma City, OK 73120 Phone: (405) 751-3137 Fax: (405) 751-3408

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

RUSH Due Date

Accurate Environmental Labs

Chain of Custody

Client Name: OG&E Muskogee Power Plant

Project Name: CCR Groundwater Monitoring

Accurate Work Order # AD12185	Date Sample Taken	Time Sample Taken	Matrix (GW)	Grab/Comp	Client/Lab Sample Location / DEQ Location Code	Field Results	Sample Preservation / Number of Containers	Radium 226 and 228 combined	Cool < 4°C
-06	9/12/18	11:40am	GW		MW-2 DUP MK-121606		1	x	
-07	9/12/18	12:30pm	GW		Blank Water MK-121607		1	x	

On Site Info: Raw Alkalinity (TOC Raw)= ________ mg/L Turbidity (E.Coli)= ________ ntu

Matrix Codes: DW = Drinking Water WW = Wastewater SL = Sludge O = Other_Groundwater

E.Coli Source: GWUDI-FS= Groundwater under direct influence of Flowing Stream GWUDI-RL= Groundwater under direct influence of Reservoir/Lake

Comments

Field Instrument Calibration: Meter Type | Standards | Final Read | Date, Time | Initials

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate.--

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility. Signature: [signature] Date/Time: 9/14/18

Sampled By: Michael Jordan Company: Oklahoma Gas & Electric Sample Method: Grab

Relinquished By: [signature] Date/Time: 9/14/18 4:30 Received By: [signature] Date/Time

☐ Relinquished to Lab By: ☐ Rel'd to Log-In Fridge By: Date/Time Received at Lab By: [signature] Rec'd °C 3.1 Date/Time 9-12-18 1630

Reporting Requirements (standard 10-15 working days) | Compliance Reporting? Yes or No (DMR, PWS,) | Oklahoma PWS ID # | RUSH Request (if available) ______ (Working Days)

Mail Report: Smithsca@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

Mail Invoice: Email invoice to:

Bid # -

Address: APVendorInvoices@oge.com PO # - 4500883927

Phone #: 405-553-4079 Fax #: 405-553-4063

Accurate Environmental Laboratories

October 30, 2018

Client: OG&E - Muskogee

5501 Three Forks Road

Fort Gibson, OK 74434

Requested By: --

National Environmental Laboratory Accreditation Program Kansas CERT # E-10219

9/26/18

Sample Project Name:	CCR Groundwater Monitoring
Date Samples Received:	September 27, 2018 Time: 8:15 sample temp upon arrival at lab = 1°C - On Ice
Matrix:	Ground Water
Lab Log Numbers:	**AI27001-01 AI27001-02 AI27001-03 AI27001-04 AI27001-05 AI27001-06 AI27001-07**
Work Order:	AI27001
Report #	AI27001-1030181112
EPA Lab ID#'s:	**Stillwater OK00092 Tulsa OK00983 OKC OK00129 ICR OK 001**
Oklahoma Certification:	Stillwater WasteWater, DEQ 8316/ Drinking Water, DEQ D9602 Tulsa WasteWater, DEQ 9905 / Drinking Water, DEQ D9901 Oklahoma City WasteWater DEQ 7202 / Drinking Water, DEQ D9937
Kansas Certification:	Stillwater NELAP CERT # E-10219 Oklahoma City NELAP CERT # E-10414
New Hampshire Cert.:	Oklahoma City Drinking Water NH ELAP Lab ID # 2072
Texas Certification:	Stillwater Drinking Water NELAP CERT # T105704533-14-1
Method Reference:	40 CFR 136, 141, and 261 Methods for Chemical Analysis of Water and Wastes EPA-600/4-79-020, March 1983. Test Methods for Evaluating Solid Wastes, SW-846, Final Update III. Standard Methods 1998 (20th Edition), Standard Methods 2005 (21st Edition) and Standard Methods 2011 (22nd Edition) for the Examination of Water and Wastewater.
Analysis Reference:	If qualifiers present in "Prep Info" or "Analysis Info", then analysis performed as follows: @= Tulsa Lab and * = OKC Lab. If no qualifiers present, then analysis performed at Stillwater Lab. Accurate Environmental Laboratories certify that the test results performed at the Stillwater lab meet all requirements of NELAP. Any exceptions to this can be found in the report footer or Quality Control Section of the report. This report is to only be replicated in its entirety. Accurate Environmental sampling protocol was followed for any sampling performed by Accurate Field Services.

Sample: *MW-1 MK-126722* Location Code: PWSID#:

Collection Type: Grab Sample Time: 9/26/18 12:52 Lab Log# AI27001-01

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	0.650 pCi/L		0.623	10/18/18 10:47	10/22/18 16:25
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.416 pCi/L			10/18/18 10:47	10/22/18 16:25
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.252	10/06/18 15:32	10/18/18 16:39
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.281 pCi/L			10/06/18 15:32	10/18/18 16:39

Sample: *MW-2 MK-126723* Location Code: PWSID#:

Collection Type: Grab Sample Time: 9/26/18 13:06 Lab Log# AI27001-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.597	10/18/18 10:47	10/22/18 16:25
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.384 pCi/L			10/18/18 10:47	10/22/18 16:25
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.269	10/06/18 15:32	10/18/18 17:09
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.311 pCi/L			10/06/18 15:32	10/18/18 17:09

Sample: *MW-3 MK-126724* Location Code: PWSID#:

Collection Type: Grab Sample Time: 9/26/18 13:21 Lab Log# AI27001-03

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.665	10/18/18 10:47	10/22/18 16:25
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.383 pCi/L			10/18/18 10:47	10/22/18 16:25
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.271 pCi/L		0.246	10/06/18 15:32	10/18/18 17:40
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.294 pCi/L			10/06/18 15:32	10/18/18 17:40

Sample: *MW-4 MK-126725* Location Code: PWSID#:

Collection Type: Grab Sample Time: 9/26/18 13:41 Lab Log# AI27001-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	1.51 pCi/L		0.755	10/18/18 10:47	10/22/18 16:25
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.449 pCi/L			10/18/18 10:47	10/22/18 16:25
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.246	10/06/18 15:32	10/18/18 18:10
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.252 pCi/L			10/06/18 15:32	10/18/18 18:10

Sample: *MW-5 MK-126726* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 9/26/18 13:52 **Lab Log#** AI27001-05

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	0.797 pCi/L		0.606	10/18/18 10:47	10/22/18 16:25
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.388 pCi/L			10/18/18 10:47	10/22/18 16:25
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.245	10/06/18 15:32	10/18/18 18:40
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.215 pCi/L			10/06/18 15:32	10/18/18 18:40

Sample: *MW-5 DUP MK-126727* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 9/26/18 13:21 **Lab Log#** AI27001-06

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	0.924 pCi/L		0.509	10/18/18 10:47	10/22/18 16:25
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.393 pCi/L			10/18/18 10:47	10/22/18 16:25
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.245	10/06/18 15:32	10/18/18 19:10
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.214 pCi/L			10/06/18 15:32	10/18/18 19:10

Sample: *Blank Water MK- 126728* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 9/26/18 13:55 **Lab Log#** AI27001-07

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	0.883 pCi/L		0.450	10/18/18 10:47	10/22/18 16:25
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.379 pCi/L			10/18/18 10:47	10/22/18 16:25
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.283	10/06/18 15:32	10/18/18 19:41
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.196 pCi/L			10/06/18 15:32	10/18/18 19:41

Notes and Definitions

***Alpha, Beta and Radium analysis performed under NELAC certification NJ OK001 and OK 9517

MCL	Analyte concentration may exceed Maximum Contaminant Limit (MCL) for EPA Primary or Secondary Drinking Water Regulations.
###	Analyte concentration may exceed regulatory limit.
PQL	Practical Quantitation Limit - the method reporting limit (MRL) adjusted for any dilutions or other changes made to the sample to deal with interferences/matrix effects
BPQL	Below Practical Quantitation Limit (if applicable).

The "Prep Date" of the QC analysis coincides with the characters of the appropriate QC Lab ID. (Example: 19 A 02 15 - BLK = 2019, Jan 2, Batch #15 - Blank)

Lab Manager

Quality Control Data

Blank Data

QC Lab #	Test Group	Test	Result		PQL	Flags
18J3015-BLK1	Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL	pCi/L	0.389	
18J3020-BLK1	Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL	pCi/L	0.144	

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

☐ RUSH Due Date

Chain of Custody

Accurate Environmental Labs

Client Name: OG&E Muskogee Power Plant

Project Name: CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix or Source (Refer below)	Grab (G) or Comp (C)	Client I.D. / Sample Location or DEQ/EPA Location Code	Field Results (pH, Temp, Chlorine, ... Units needed & units)	Sample Preserv. & Container →	Cool < 6°C	Analysis Requested → Radium 226 and 228 combined
							# of Container		
AI27001									
-01	9/26/18	1252	GW	G	MW-1 MK- 126722		1	X	
-02	9/26/18	1306	GW	G	MW-2 MK- 126723		1	X	
-03	9/26/18	1321	GW	G	MW-3 MK- 126724		1	X	
-04	9/26/18	1341	GW	G	MW-4 MK- 126725		1	X	
-05	9/26/18	1352	GW	G	MW-5 MK- 126726		1	X	

On-Site Info: Raw Alkalinity (TOC Raw)= _____ mg/L Turbidity (E.Coli)= _____ ntu

Matrix Codes: DW = Drinking Water WW = Wastewater SL = Sludge O = Other_Groundwater

E.CoE Source: GWUDI-FS= Groundwater under direct influence of Flowing Stream GWUDI-RL= Groundwater under direct influence of Reservoir/Lake

Field Instrument Calibration:

Meter Type	Standards	Final Read.	Date , Time	Initials

Comments:

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate. --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility. Signature: _____ Date/Time: 9/26/18 2:30

Sampled By: Micheal Jordan Company: Oklahoma Gas & Electric Sample Method: Grab

Relinquished By: _____ Date/Time: 9/27/18 8:15

Received By: Madisyn Baker Date/Time: 9-27-18 0815

☐ Relinquished to Lab By: Date/Time

☐ Rel'd to Log-In Fridge By: Received at Lab By: Rec'd °C 1.3 Date/Time

Reporting Requirements (standard 10-15 working days): Compliance Reporting? Yes or No (DMR, PWS,) Oklahoma PWS ID #: RUSH Request (if available): _____ (Working Days)

Mail Report: Smithsca@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

Mail Invoice: Email invoice to: Bid # -

Address: APVendorInvoices@oge.com PO # - 4500883927

Phone #: 405-553-4079 Fax #: 405-553-4063

www.accuratelabs.com (800) 516-5227

505 South Lowry Street Stillwater, OK 74074 Phone: (405) 372-5300 Fax: (405) 372-5396

3910 E. 51st Street Tulsa, OK 74135 Phone: (918) 663-5400 Fax: (918) 663-6300

12036 N. Pennsylvania Oklahoma City, OK 73120 Phone: (405) 751-3132 Fax: (405) 751-3108

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

RUSH Due Date

Chain of Custody

Accurate Environmental Labs

Client Name: OG&E Muskogee Power Plant

Project Name: CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix of Source (See below)	Grab (G) or Comp (C)	Client I.D. / Sample Location or DEQ / EPA Location Code	Field Results (pH, Temp, Chlorine, ...) (note analysis & units)	Sample Preserv. & # Container →	Cool < 4°C	Analysis Requested → Radium 226 and 228 combined
							# of Containers →		
AI 27001									
-06	9/26/18	1321	GW	G	MW-3 DUP MK- 126727		1	x	
-07	9/26/18	1355	GW	G	Blank Water MK- 126729		1	x	

On-Site Info: Raw Alkalinity (TOC Raw)= _____ mg/L Turbidity (E.Coli)= _____ ntu

Matrix Codes: DW = Drinking Water WW = Wastewater SL = Sludge O = Other_Groundwater

E.Coli Source: GWUDI-FS= Groundwater under direct influence of Flowing Stream GWUDI-RL= Groundwater under direct influence of Reservoir/Lake

Comments:

Field Instrument Calibration

Meter Type	Standards	Final Read.	Date , Time	Initials

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate.--

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample is/are representative of a typical operating day discharge for the above facility. Signature: _____ Date/Time 9/26/18 2:30

Sampled By: Micheal Jordan Company: Oklahoma Gas & Electric Sample Method: Grab

Relinquished By: _____ Date/Time 9/27/18 8:15

☐ Relinquished to Lab By:

☐ Rela'd to Log-in Fridge By: Date/Time

Received at Lab By: Madicyn Baker Date/Time 9-27-18 0815

Rec'd °C 1.3

Reporting Requirements (standard TAT 5 working days): Compliance Reporting? Yes or No (DMR, PWS,) Oklahoma PWS ID #

RUSH Request (if available) _____ (Working Days)

Mail Report: Smithsca@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

Mail Invoice: Email invoice to:

Address: APVendorInvoices@oge.com

Bid # -

PO # - 4500883927

Phone #: 405-553-4079 Fax #: 405-553-4063

www.accuratelabs.com (800) 516-5227

505 South Lowry Street Stillwater, OK 74074 Phone: (405) 372-5300 Fax: (405) 372-5396

3910 E. 51st Street Tulsa, OK 74135 Phone: (918) 663-5400 Fax: (918) 663-6300

12036 N. Pennsylvania Oklahoma City, OK 73120 Phone: (405) 751-3132 Fax: (405) 751-3108

Sampling Log

Date: 1-8-2019

Sample ID

Weather Conditions and Temperature: Clear, Sunny 54°

Field Samplers **Names:** Tad Dow, Jason Childress

Groundwater Level (ft below TOC): 10' 6" TD: 20' 3"

MW01

Sample Time: 11:24

Purge Volume: 4 gal **Field pH:**

Comments:

Groundwater Level (ft below TOC):: 4' 5" TD: 20' 1"

MW02

Sample Time: 11:51

Purge Volume: 6.9 gal **Field pH:**

Comments:

Groundwater Level (ft below TOC):: 8' TD: 22' 8"

MW03

Sample Time: 12:06

Purge Volume: 7.14 gal **Field pH:**

Comments:

Groundwater Level (ft below TOC):: 10' 7" TD: 22' 4"

MW04

Sample Time: 12:41

Purge Volume: 6.12 gal **Field pH:**

Comments:

Groundwater Level (ft below TOC):: 10' TD: 21' 7"

MW05

Sample Time: 13:02

Purge Volume: 6.12 gal **Field pH:**

Comments:

Additional Notes:

Groundwater Velocity **Date: 1/08/2019**

V=KI/n V = Groundwater velocity
K = Horizontal hydraulic conductivity (at site: 21.3767 µm/sec = 0.00007013'/sec = 7.013E-05)
I = Horizontal hydraulic gradient = dh/dl = difference in head/horizontal distance between wells)
n = Effective porosity = 0.29 to 0.41 (Sandy Clay) [Use 0.29]

MW1 - MW2:

dh =	0.916	MW1 =	509	10.5	498.5
dl =	1053.2	MW2 =	502	4.416	497.584
I = dh/dl =	0.00086973				

V = KI/n = 2.10325E-07 ft/sec = 0.064107 µm/sec

MW1 - MW3:

dh =	1.5	MW1 =	509	10.5	498.5
dl =	1390	MW3 =	505	8	497
I = dh/dl =	0.001079137				

V = KI/n = 2.60965E-07 ft/sec = 0.079542 µm/sec

MW5 - MW4:

dh =	-0.417	MW5 =	506	10	496
dl =	326.21	MW4 =	507	10.583	496.417
I = dh/dl =	-0.001278318				

V = KI/n = -3.09132E-07 ft/sec = -0.09422 µm/sec

MW5 - MW3:

dh =	-1	MW5 =	506	10	496
dl =	773.75	MW3 =	505	8	497
I = dh/dl =	-0.001292407				

V = KI/n = -3.1254E-07 ft/sec = -0.09526 µm/sec

Attachment 2 : Groundwater Velocity Calculation

Attachment 2 : Groundwater Flow Direction Field Notes

1-9-2019

WX-MW2-MW3: HG: 0.03058 ft/ft
DOF: 137.76° clockwise from True North

W1-MW2-MW4: HG: 0.00829 ft/ft
DOF: 161.74° clockwise from True North

W1-MW2-MW5: HG: 0.00589
DOF: 178.2° clockwise from True North

W1-MW3-MW4: HG: 0.00148 ft/ft
DOF: 296.76° clockwise from True North

W1-MW3-MW5: HG: 0.00143 ft/ft
DOF: 296° clockwise from True North

W1-MW4-MW5: HG: 0.00138 ft/ft
DOF: 193.23° clockwise from True North

W2-MW3-MW4: HG: 0.00374 ft/ft
DOF: 34.33° clockwise from True North

W2-MW3-MW5: HG: 0.0038 ft/ft
DOF: 31.38° clockwise from True North

W2-MW4-MW5: HG: 0.00418 ft/ft
DOF: 29.89° clockwise from True North

W3-MW4-MW5: HG: 0.00134 ft/ft
DOF: 337.95° clockwise from True North

Accurate Environmental Laboratories

January 15, 2019

Client: OG&E - Muskogee

5501 Three Forks Road

Fort Gibson, OK 74434

Requested By: -

National Environmental Laboratory Accreditation Program Kansas CERT # E-10219

Sample Project Name:	CCR Groundwater Monitoring
Date Samples Received:	January 09, 2019 Time: 8:10 sample temp upon arrival at lab = 0°C - On Ice
Matrix:	Ground Water
Lab Log Numbers:	BA09001-01 BA09001-02 BA09001-03 BA09001-04 BA09001-05 BA09001-06 BA09001-07
Work Order:	BA09001
Report #	BA09001-0115191621
EPA Lab ID#'s:	Stillwater OK00092 Tulsa OK00983 OKC OK00129 ICR OK 001
Oklahoma Certification:	Stillwater WasteWater, DEQ 8316/ Drinking Water, DEQ D9602 Tulsa WasteWater, DEQ 9905 / Drinking Water, DEQ D9901 Oklahoma City WasteWater DEQ 7202 / Drinking Water, DEQ D9937
Kansas Certification:	Stillwater NELAP CERT # E-10219 Oklahoma City NELAP CERT # E-10414
New Hampshire Cert.:	Oklahoma City Drinking Water NH ELAP Lab ID # 2072
Texas Certification:	Stillwater Drinking Water NELAP CERT # T105704533-14-1
Method Reference:	40 CFR 136, 141, and 261 Methods for Chemical Analysis of Water and Wastes EPA-600/4-79-020, March 1983. Test Methods for Evaluating Solid Wastes, SW-846, Final Update III. Standard Methods 1998 (20th Edition), Standard Methods 2005 (21st Edition) and Standard Methods 2011 (22nd Edition) for the Examination of Water and Wastewater.
Analysis Reference:	If qualifiers present in "Prep Info" or "Analysis Info", then analysis performed as follows: @= Tulsa Lab and * = OKC Lab. If no qualifiers present, then analysis performed at Stillwater Lab. Accurate Environmental Laboratories certify that the test results performed at the Stillwater lab meet all requirements of NELAP. Any exceptions to this can be found in the report footer or Quality Control Section of the report. This report is to only be replicated in its entirety. Accurate Environmental sampling protocol was followed for any sampling performed by Accurate Field Services.

Sample: *MW-1 MK-126804* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 1/8/19 11:24 **Lab Log#** BA09001-01

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	BPQL mg/L		0.500	01/10/19 09:26 BM	01/10/19 14:50 BM
Fluoride EPA 300.0	Fluoride	0.26 mg/L		0.10	01/10/19 09:26 BM	01/10/19 14:50 BM
Sulfate EPA 300.0	Sulfate	6.07 mg/L		0.500	01/10/19 09:26 BM	01/10/19 14:50 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	365.0 mg/L		25.0	01/11/19 11:33 ZS	01/14/19 11:51 ZS
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	01/10/19 16:30 RW	01/11/19 19:42 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	01/10/19 16:30 RW	01/14/19 14:48 PD
Barium (Ba) EPA 200.8	Barium	0.167 mg/L		0.005	01/10/19 16:30 RW	01/11/19 19:42 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	01/10/19 16:30 RW	01/11/19 19:42 PD
Boron (B) EPA 200.8	Boron	0.079 mg/L		0.025	01/10/19 16:30 RW	01/11/19 19:42 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	01/10/19 16:30 RW	01/11/19 19:42 PD
Calcium (Ca) EPA 200.7	Calcium	107 mg/L		0.50	01/10/19 16:30 RW	01/14/19 17:47 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	01/10/19 16:30 RW	01/11/19 19:42 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	01/10/19 16:30 RW	01/11/19 19:42 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	01/10/19 16:30 RW	01/11/19 19:42 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	01/10/19 16:30 RW	01/11/19 15:58 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	01/11/19 08:40 RW	01/11/19 14:27 rw
Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL mg/L		0.005	01/10/19 16:30 RW	01/11/19 19:42 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	01/10/19 16:30 RW	01/11/19 19:42 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	01/10/19 16:30 RW	01/11/19 19:42 PD

Sample: *MW-1 MK-126804* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 1/8/19 11:51 **Lab Log#** BA09001-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	34.6 mg/L		5.00	01/10/19 09:26 BM	01/10/19 16:37 BM
Fluoride EPA 300.0	Fluoride	0.24 mg/L		0.10	01/10/19 09:26 BM	01/10/19 16:16 BM
Sulfate EPA 300.0	Sulfate	101 mg/L		5.00	01/10/19 09:26 BM	01/10/19 16:37 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	578.0 mg/L		25.0	01/11/19 11:33 ZS	01/14/19 11:51 ZS
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	01/10/19 16:30 RW	01/11/19 19:47 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	01/10/19 16:30 RW	01/14/19 14:54 PD
Barium (Ba) EPA 200.8	Barium	0.243 mg/L		0.005	01/10/19 16:30 RW	01/11/19 19:47 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	01/10/19 16:30 RW	01/11/19 19:47 PD
Boron (B) EPA 200.8	Boron	0.171 mg/L		0.025	01/10/19 16:30 RW	01/11/19 19:47 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	01/10/19 16:30 RW	01/11/19 19:47 PD
Calcium (Ca) EPA 200.7	Calcium	134 mg/L		0.50	01/10/19 16:30 RW	01/14/19 17:51 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	01/10/19 16:30 RW	01/11/19 19:47 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	01/10/19 16:30 RW	01/11/19 19:47 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	01/10/19 16:30 RW	01/11/19 19:47 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	01/10/19 16:30 RW	01/11/19 16:02 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	01/11/19 08:40 RW	01/11/19 14:30 rw

Sample: **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 1/8/19 11:51 Lab Log# BA09001-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Molybdenum (Mo) EPA 200.8	Molybdenum	0.005 mg/L		0.005	01/10/19 16:30 RW	01/11/19 19:47 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	01/10/19 16:30 RW	01/11/19 19:47 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	01/10/19 16:30 RW	01/11/19 19:47 PD

Sample: *MW-3 MK-126806* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 1/8/19 12:06 Lab Log# BA09001-03

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	106 mg/L		12.5	01/10/19 09:26 BM	01/10/19 17:20 BM
Fluoride EPA 300.0	Fluoride	0.19 mg/L		0.10	01/10/19 09:26 BM	01/10/19 16:59 BM
Sulfate EPA 300.0	Sulfate	152 mg/L		12.5	01/10/19 09:26 BM	01/10/19 17:20 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	920.0 mg/L		25.0	01/11/19 11:33 ZS	01/14/19 11:51 ZS
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	01/10/19 16:30 RW	01/11/19 19:52 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	01/10/19 16:30 RW	01/14/19 15:15 PD
Barium (Ba) EPA 200.8	Barium	0.278 mg/L		0.005	01/10/19 16:30 RW	01/13/19 19:52 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	01/10/19 16:30 RW	01/11/19 19:52 PD
Boron (B) EPA 200.8	Boron	0.097 mg/L		0.025	01/10/19 16:30 RW	01/11/19 19:52 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	01/10/19 16:30 RW	01/11/19 19:52 PD
Calcium (Ca) EPA 200.7	Calcium	198 mg/L		0.50	01/10/19 16:30 RW	01/14/19 17:55 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	01/10/19 16:30 RW	01/11/19 19:52 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	01/10/19 16:30 RW	01/11/19 19:52 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	01/10/19 16:30 RW	01/11/19 19:52 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	01/10/19 16:30 RW	01/11/19 16:07 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	01/11/19 08:40 RW	01/11/19 14:34 RW
Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL mg/L		0.005	01/10/19 16:30 RW	01/11/19 19:52 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	01/10/19 16:30 RW	01/11/19 19:52 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	01/10/19 16:30 RW	01/11/19 19:52 PD

Sample: *MW-4 MK-126807* **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 1/8/19 12:41 Lab Log# BA09001-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	107 mg/L		12.5	01/10/19 09:26 BM	01/10/19 18:03 BM
Fluoride EPA 300.0	Fluoride	0.23 mg/L		0.10	01/10/19 09:26 BM	01/10/19 17:42 BM
Sulfate EPA 300.0	Sulfate	338 mg/L		12.5	01/10/19 09:26 BM	01/10/19 18:03 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	1346 mg/L		25.0	01/11/19 11:33 ZS	01/14/19 11:51 ZS
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	01/10/19 16:30 RW	01/11/19 19:58 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	01/10/19 16:30 RW	01/14/19 15:20 PD
Barium (Ba) EPA 200.8	Barium	0.215 mg/L		0.005	01/10/19 16:30 RW	01/11/19 19:58 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	01/10/19 16:30 RW	01/11/19 19:58 PD
Boron (B) EPA 200.8	Boron	0.085 mg/L		0.025	01/10/19 16:30 RW	01/11/19 19:58 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	01/10/19 16:30 RW	01/11/19 19:58 PD

Sample: | **Location Code:** | **PWSID#:**

Collection Type: Grab | **Sample Time:** 1/8/19 12:41 | **Lab Log#** BA09001-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Calcium (Ca) EPA 200.7	Calcium	317 mg/L		0.50	01/10/19 16:30 RW	01/14/19 17:59 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	01/10/19 16:30 RW	01/11/19 19:58 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	01/10/19 16:30 RW	01/11/19 19:58 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	01/10/19 16:30 RW	01/11/19 19:58 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	01/10/19 16:30 RW	01/11/19 16:11 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	01/11/19 08:40 RW	01/11/19 14:37 rw
Molybdenum (Mo) EPA 200.8	Molybdenum	0.006 mg/L		0.005	01/10/19 16:30 RW	01/11/19 19:58 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	01/10/19 16:30 RW	01/11/19 19:58 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	01/10/19 16:30 RW	01/11/19 19:58 PD

Sample: *MW-5 MK-126808* | **Location Code:** | **PWSID#:**

Collection Type: Grab | **Sample Time:** 1/8/19 13:02 | **Lab Log#** BA09001-05

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	19.8 mg/L		12.5	01/10/19 09:26 BM	01/10/19 18:47 BM
Fluoride EPA 300.0	Fluoride	0.16 mg/L		0.10	01/10/19 09:26 BM	01/10/19 18:25 BM
Sulfate EPA 300.0	Sulfate	139 mg/L		12.5	01/10/19 09:26 BM	01/10/19 18:47 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	723.0 mg/L		25.0	01/11/19 11:33 ZS	01/14/19 11:51 ZS
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	01/10/19 16:30 RW	01/11/19 20:03 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	01/10/19 16:30 RW	01/14/19 15:26 PD
Barium (Ba) EPA 200.8	Barium	0.159 mg/L		0.005	01/10/19 16:30 RW	01/11/19 20:03 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	01/10/19 16:30 RW	01/11/19 20:03 PD
Boron (B) EPA 200.8	Boron	0.221 mg/L		0.025	01/10/19 16:30 RW	01/11/19 20:03 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	01/10/19 16:30 RW	01/11/19 20:03 PD
Calcium (Ca) EPA 200.7	Calcium	199 mg/L		0.50	01/10/19 16:30 RW	01/14/19 18:02 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	01/10/19 16:30 RW	01/11/19 20:03 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	01/10/19 16:30 RW	01/11/19 20:03 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	01/10/19 16:30 RW	01/11/19 20:03 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	01/10/19 16:30 RW	01/11/19 16:15 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	01/11/19 08:40 RW	01/11/19 14:46 rw
Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL mg/L		0.005	01/10/19 16:30 RW	01/11/19 20:03 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	01/10/19 16:30 RW	01/11/19 20:03 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	01/10/19 16:30 RW	01/11/19 20:03 PD

Sample: *MW-5 DUP MK-126809* | **Location Code:** | **PWSID#:**

Collection Type: Grab | **Sample Time:** 1/8/19 12:06 | **Lab Log#** BA09001-06

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	107 mg/L		12.5	01/10/19 09:26 BM	01/10/19 19:30 BM
Fluoride EPA 300.0	Fluoride	0.19 mg/L		0.10	01/10/19 09:26 BM	01/10/19 19:08 BM
Sulfate EPA 300.0	Sulfate	154 mg/L		12.5	01/10/19 09:26 BM	01/10/19 19:30 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	952.0 mg/L		25.0	01/14/19 11:09 ZS	01/15/19 11:45 ZS

Sample: **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 1/8/19 12:06 Lab Log# BA09001-06

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	01/10/19 16:30 RW	01/11/19 20:09 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	01/10/19 16:30 RW	01/14/19 15:31 PD
Barium (Ba) EPA 200.8	Barium	0.286 mg/L		0.005	01/10/19 16:30 RW	01/11/19 20:09 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	01/10/19 16:30 RW	01/11/19 20:09 PD
Boron (B) EPA 200.8	Boron	0.091 mg/L		0.025	01/10/19 16:30 RW	01/11/19 20:09 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	01/10/19 16:30 RW	01/11/19 20:09 PD
Calcium (Ca) EPA 200.7	Calcium	194 mg/L		0.50	01/10/19 16:30 RW	01/14/19 18:06 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	01/10/19 16:30 RW	01/11/19 20:09 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	01/10/19 16:30 RW	01/11/19 20:09 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	01/10/19 16:30 RW	01/11/19 20:09 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	01/10/19 16:30 RW	01/11/19 16:20 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ng/L		0.050	01/11/19 08:40 RW	01/11/19 14:49 rw
Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL mg/L		0.005	01/10/19 16:30 RW	01/11/19 20:09 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	01/10/19 16:30 RW	01/11/19 20:09 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	01/10/19 16:30 RW	01/11/19 20:09 PD

Sample: ***Blank Water MK-126810*** **Location Code:** **PWSID#:**

Collection Type: Grab Sample Time: 1/8/19 13:29 Lab Log# BA09001-07

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Chloride EPA 300.0	Chloride	BPQL mg/L		0.500	01/10/19 09:26 BM	01/10/19 20:56 BM
Fluoride EPA 300.0	Fluoride	BPQL mg/L		0.10	01/10/19 09:26 BM	01/10/19 20:56 BM
Sulfate EPA 300.0	Sulfate	BPQL mg/L		0.500	01/10/19 09:26 BM	01/10/19 20:56 BM
Total Dissolved Solids SM2540 C	Total Dissolved Solids	BPQL mg/L		25.0	01/11/19 11:33 ZS	01/14/19 11:51 ZS
Antimony (Sb) EPA 200.8	Antimony	BPQL mg/L		0.005	01/10/19 16:30 RW	01/11/19 20:30 PD
Arsenic (As) EPA 200.8	Arsenic	BPQL mg/L		0.0005	01/10/19 16:30 RW	01/11/19 20:30 PD
Barium (Ba) EPA 200.8	Barium	0.011 mg/L		0.005	01/10/19 16:30 RW	01/11/19 20:30 PD
Beryllium (Be) EPA 200.8	Beryllium	BPQL mg/L		0.001	01/10/19 16:30 RW	01/11/19 20:30 PD
Boron (B) EPA 200.8	Boron	BPQL mg/L		0.025	01/10/19 16:30 RW	01/11/19 20:30 PD
Cadmium (Cd) EPA 200.8	Cadmium	BPQL mg/L		0.0010	01/10/19 16:30 RW	01/11/19 20:30 PD
Calcium (Ca) EPA 200.7	Calcium	13.2 mg/L		0.10	01/10/19 16:30 RW	01/11/19 20:04 LF
Chromium (Cr) EPA 200.8	Chromium	BPQL mg/L		0.010	01/10/19 16:30 RW	01/11/19 20:30 PD
Cobalt (Co) EPA 200.8	Cobalt	BPQL mg/L		0.010	01/10/19 16:30 RW	01/11/19 20:30 PD
Lead (Pb) EPA 200.8	Lead	BPQL mg/L		0.0005	01/10/19 16:30 RW	01/11/19 20:30 PD
Lithium (Li) EPA 6020A	Lithium	BPQL mg/L		0.050	01/10/19 16:30 RW	01/11/19 16:37 LF
Mercury (Hg) EPA 245.1	Mercury	BPQL ug/L		0.050	01/11/19 08:40 RW	01/11/19 14:52 rw
Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL mg/L		0.005	01/10/19 16:30 RW	01/11/19 20:30 PD
Selenium (Se) EPA 200.8	Selenium	BPQL mg/L		0.0050	01/10/19 16:30 RW	01/11/19 20:30 PD
Thallium (Tl) EPA 200.8	Thallium	BPQL mg/L		0.0005	01/10/19 16:30 RW	01/11/19 20:30 PD

Notes and Definitions

#52	Analyte recoveries are outside of acceptance limits for the matrix spike sample. This failure does not invalidate data reported.
MCL	Analyte concentration may exceed Maximum Contaminant Limit (MCL) for EPA Primary or Secondary Drinking Water Regulations.
###	Analyte concentration may exceed regulatory limit.
PQL	Practical Quantitation Limit - the method reporting limit (MRL) adjusted for any dilutions or other changes made to the sample to deal with interferences/matrix effects
BPQL	Below Practical Quantitation Limit (if applicable).

The "Prep Date" of the QC analysis coincides with the characters of the appropriate QC Lab ID. (Example: 19 A 02 15 - BLK = 2019, Jan 2, Batch #15 - Blank)

Lab Manager

Quality Control Data

Blank Data

QC Lab #	Test Group	Test	Result		PQL	Flags
19A1033-BLK1	Chloride EPA 300.0	Chloride	BPQL	mg/L	0.500	
19A1033-BLK1	Fluoride EPA 300.0	Fluoride	BPQL	mg/L	0.10	
19A1033-BLK1	Sulfate EPA 300.0	Sulfate	BPQL	mg/L	0.500	
19A1146-BLK1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	BPQL	mg/L	25.0	
19A1435-BLK1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	BPQL	mg/L	25.0	
19A1091-BLK1	Antimony (Sb) EPA 200.8	Antimony	BPQL	mg/L	0.005	
19A1091-BLK1	Arsenic (As) EPA 200.8	Arsenic	BPQL	mg/L	0.0005	
19A1091-BLK1	Barium (Ba) EPA 200.8	Barium	BPQL	mg/L	0.005	
19A1091-BLK1	Beryllium (Be) EPA 200.8	Beryllium	BPQL	mg/L	0.001	
19A1091-BLK1	Boron (B) EPA 200.8	Boron	BPQL	mg/L	0.025	
19A1091-BLK1	Cadmium (Cd) EPA 200.8	Cadmium	BPQL	mg/L	0.0010	
19A1094-BLK1	Calcium (Ca) EPA 200.7	Calcium	BPQL	mg/L	0.10	
19A1091-BLK1	Chromium (Cr) EPA 200.8	Chromium	BPQL	mg/L	0.010	
19A1091-BLK1	Cobalt (Co) EPA 200.8	Cobalt	BPQL	mg/L	0.010	
19A1091-BLK1	Lead (Pb) EPA 200.8	Lead	BPQL	mg/L	0.0005	
19A1093-BLK1	Lithium (Li) EPA 6020A	Lithium	BPQL	mg/L	0.050	
19A1130-BLK1	Mercury (Hg) EPA 245.1	Mercury	BPQL	ng/L	0.050	
19A1091-BLK1	Molybdenum (Mo) EPA 200.8	Molybdenum	BPQL	mg/L	0.005	
19A1091-BLK1	Selenium (Se) EPA 200.8	Selenium	BPQL	mg/L	0.0050	
19A1091-BLK1	Thallium (Tl) EPA 200.8	Thallium	BPQL	mg/L	0.0005	

Duplicate Sample Data

QC Lab #	Test Group	Test Name	Source	Dup Result	Samp Result	% RPD	RPD Limit	Flags
19A1033-DUP1	Chloride EPA 300.0	Chloride	BA09001-07	BPQL	BPQL	UDL	20	
19A1033-DUP1	Fluoride EPA 300.0	Fluoride	BA09001-07	BPQL	BPQL	UDL	20	
19A1033-DUP1	Sulfate EPA 300.0	Sulfate	BA09001-07	BPQL	BPQL	UDL	20	

Quality Control Data

Laboratory Control Sample Data

Lab QC#	Test Group	Test Name	LCS Result	Spike Level	Units	% Rec.	Control Limits	Flags
19A1033-BS1	Chloride EPA 300.0	Chloride	2.72	3.000	mg/L	91	90 - 110	
19A1033-BS1	Fluoride EPA 300.0	Fluoride	1.89	2.000	mg/L	94	90 - 110	
19A1033-BS1	Sulfate EPA 300.0	Sulfate	14.8	15.00	mg/L	99	90 - 110	
19A1146-BS1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	976.0	1000	mg/L	98	80 - 120	
19A1435-BS1	Total Dissolved Solids SM2540 C	Total Dissolved Solids	967.0	1000	mg/L	97	80 - 120	
19A1091-BS1	Antimony (Sb) EPA 200.8	Antimony	0.099	0.1000	mg/L	99	85 - 115	
19A1091-BS1	Arsenic (As) EPA 200.8	Arsenic	0.0936	0.1000	mg/L	94	85 - 115	
19A1091-BS1	Barium (Ba) EPA 200.8	Barium	0.101	0.1000	mg/L	101	85 - 115	
19A1091-BS1	Beryllium (Be) EPA 200.8	Beryllium	0.085	0.1000	mg/L	85	85 - 115	
19A1091-BS1	Boron (B) EPA 200.8	Boron	0.090	0.1000	mg/L	90	85 - 115	
19A1091-BS1	Cadmium (Cd) EPA 200.8	Cadmium	0.0987	0.1000	mg/L	99	85 - 115	
19A1091-BS1	Chromium (Cr) EPA 200.8	Chromium	0.091	0.1000	mg/L	91	85 - 115	
19A1091-BS1	Cobalt (Co) EPA 200.8	Cobalt	0.093	0.1000	mg/L	93	85 - 115	
19A1091-BS1	Lead (Pb) EPA 200.8	Lead	0.100	0.1000	mg/L	100	85 - 115	
19A1091-BS1	Molybdenum (Mo) EPA 200.8	Molybdenum	0.097	0.1000	mg/L	97	85 - 115	
19A1091-BS1	Selenium (Se) EPA 200.8	Selenium	0.0996	0.1000	mg/L	100	85 - 115	
19A1091-BS1	Thallium (Tl) EPA 200.8	Thallium	0.1001	0.1000	mg/L	100	85 - 115	
19A1093-BS1	Lithium (Li) EPA 6020A	Lithium	1.07	1.000	mg/L	107	85 - 115	
19A1094-BS1	Calcium (Ca) EPA 200.7	Calcium	1.91	2.000	mg/L	96	85 - 115	
19A1130-BS1	Mercury (Hg) EPA 245.1	Mercury	1.92	1.667	ug/L	115	85 - 115	

Matrix Spike Data

QC Lab #	Test Group	Test Name	Source Sample	Sample Result	Units	Spike Result	Spike Level	% Rec.	Acceptance Limits	Flags
19A1033-MS1	Chloride EPA 300.0	Chloride	BA09001-07	BPQL	mg/L	2.98	3.334	90	80 - 120	
19A1033-MS1	Fluoride EPA 300.0	Fluoride	BA09001-07	BPQL	mg/L	3.20	3.334	96	80 - 120	
19A1033-MS1	Sulfate EPA 300.0	Sulfate	BA09001-07	BPQL	mg/L	2.98	3.334	89	80 - 120	
19A1094-MS1	Calcium (Ca) EPA 200.7	Calcium	BA09001-02	134	mg/L	130	2.000	-225	85 - 115	#52
19A1093-MS1	Lithium (Li) EPA 6020A	Lithium	BA09001-01	BPQL	mg/L	0.984	1.000	98	85 - 115	
19A1130-MS1	Mercury (Hg) EPA 245.1	Mercury	BA09001-01	BPQL	ug/L	1.82	1.667	109	85 - 115	

Matrix Spike Duplicate Data

QC Lab #	Test Group	Test Name	Sample Result	Spike Result	Spike Level	Units	% Rec.	Rec. Limits	% RPD	RPD Limit	Flags
19A1094-MSD1	Calcium (Ca) EPA 200.7	Calcium	134	132	2.000	mg/L	-125	85-115	2	20	#52
19A1093-MSD1	Lithium (Li) EPA 6020A	Lithium	BPQL	0.967	1.000	mg/L	97	85-115	2	20	
19A1130-MSD1	Mercury (Hg) EPA 245.1	Mercury	BPQL	1.90	1.667	ug/L	114	85-115	4	20	

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

☐ RUSH Due Date

Chain of Custody

Accurate Environmental Labs

Client Name- **OG&E Muskogee Power Plant**

Project Name- **CCR Groundwater Monitoring**

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix or Source (Refer below)	Grab (G) or Comp (C)	Client I.D. / Sample Location or DEQ / EPA Location Code	Field Results (pH, Temp, Chlorine, ...) (note analysis & units)	Sample Presrv. & Container →	Analysis Requested → # of Container	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals* (see comments)	Radium 226 and 228 combined	Mercury (EPA 245.1)	Fluoride (EPA 300)
							Cool < 4°C	Cool < 4°C	Cool < 4°C HNO3	Cool < 4°C		Cool < 4°C	Cool < 4°C	
19A09001														
-01	1/08/19	1124	GW	G	MW-1 MK- 126804			3	X	X	X		X	X
-02	1/08/19	1151	GW	G	MW-2 MK- 126805			3	X	X	X		X	X
-03	1/08/19	1206	GW	G	MW-3 MK- 126806			3	X	X	X		X	X
-04	1/08/19	1241	GW	G	MW-4 MK- 126807			3	X	X	X		X	X
-05	1/08/19	1302	GW	G	MW-5 MK- 126808			3	X	X	X		X	X

On-Site Info: Raw Alkalinity (TOC Raw)= _____ mg/L Turbidity (E.Coli)= _____ ntu

Field Instrument Calibration

Meter Type	Standards	Final Read.	Date , Time	Initials

Matrix Codes: DW = Drinking Water WW = Wastewater SL = Sludge O = Other_Groundwater

E.Coli Source: GWUDI-FS= Groundwater under direct influence of Flowing Stream GWUDI-RL= Groundwater under direct influence of Reservoir/Lake

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

-- All Glass containers provided by Accurate Labs have Teflon lined lids --
-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate.--
-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility. Signature: Date/Time

Sampled By: Tad Dow, Jason Childress Company: Oklahoma Gas & Electric Sample Method: Grab

Relinquished By: Date/Time 1-9-19 0810 Received By: Date/Time 1-9-19 0810

☐ Relinquished to Lab By: Date/Time 1-9 Received at Lab Rec'd °C 0.6 Date/Time 1-9

☐ Rain'd to Log-In Fridge By:

Reporting Requirements (standard 10-15 working days) | Compliance Reporting? Yes or No (DMR, PWS,) | Oklahoma PWS ID # | RUSH Request (if available) _____ (Working Days)

Mail Report: Smithsca@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

Mail Invoice: **Email invoice to:**

Address: **APVendorInvoices@oge.com**

Bid # -

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12036 N. Pennsylvania Oklahoma City, OK 73120 Phone: (405) 751-3138 Fax: (405) 751-3108

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

☐ RUSH Due Date

Chain of Custody

Accurate Environmental Labs

Client Name: OG&E Muskogee Power Plant

Project Name: CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix or Source (Refer below)	Grab (G) or Comp (C)	Client I.D. / Sample Location or DEQ / EPA Location Code	Field Results (pH, Temp, Chlorine, ...) (state analysis & units)	Sample Preserv. & Container →	Analysis Requested →	# of Container ↓	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals* (see comments)	Radium 226 and 228 combined	Mercury (EPA 245.1)	Fluoride (EPA 300)
							Cool < 4°C	Cool < 4°C	Cool < 4°C HNO3					Cool < 4°C	Cool < 4°C
A09001 -06	1/08/19	1206	GW	G	MW-3 DUP MK-126809			3		X	X	X		X	X
-07	1/08/19	1329	GW	G	Blank Water MK-126810			3		X	X	X		X	X

On-Site Info: Raw Alkalinity (TOC Raw)= _____ mg/L Turbidity (E.Coli)= _____ ntu

Matrix Codes: DW = Drinking Water WW = Wastewater SL = Sludge O = Other_Groundwater

E.Coli Source: GWUDI-SS= Groundwater under direct influence of Flowing Stream GWUDI-RL= Groundwater under direct influence of Reservoir/Lake

Comments: Boron (EPA 200.8); Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300); Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

Field Instrument Calibration -

Meter Type	Standards	Final Read.	Date , Time	Initials

-- All Glass containers provided by Accurate Labs have Teflon lined lids --

-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate.--

-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility. Signature: Date/Time

Sampled By: Tad Dow, Jason Childress Company: Oklahoma Gas & Electric Sample Method: Grab

Relinquished By: Date/Time 1-9-19 0800 Received By: Date/Time 1-10-19 0930

☐ Relinquished to Lab By: Date/Time n/a Received at Lab By: Rec'd °C 1.6°C Date/Time n/a

☐ Rel'q'd to Log-In Fridge By:

Reporting Requirements (standard 10-15 working days): Compliance Reporting? Yes or No (DMR, PWS,) Oklahoma PWS ID # RUSH Request (if available) _____ (Working Days)

Mail Report: Smithsca@oge.com, dowta@oge.com

Address 5501 Three Forks Road, Ft. Gibson, OK 74434

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Accurate Environmental Laboratories

February 12, 2019

Client: OG&E - Muskogee

5501 Three Forks Road

Fort Gibson, OK 74434

Requested By: -

National Environmental Laboratory Accreditation Program Kansas CERT # E-10219

Sample Project Name:	CCR Groundwater Monitoring
Date Samples Received:	January 09, 2019 Time: 8:10 sample temp upon arrival at lab = 0°C - On Ice
Matrix:	Ground Water
Lab Log Numbers:	**BA09002-01 BA09002-02 BA09002-03 BA09002-04 BA09002-05 BA09002-06 BA09002-07**
Work Order:	BA09002
Report #	BA09002-0212191104
EPA Lab ID#'s:	**Stillwater OK00092 Tulsa OK00983 OKC OK00129 ICR OK 001**
Oklahoma Certification:	Stillwater WasteWater, DEQ 8316/ Drinking Water, DEQ D9602 Tulsa WasteWater, DEQ 9905 / Drinking Water, DEQ D9901 Oklahoma City WasteWater DEQ 7202 / Drinking Water, DEQ D9937
Kansas Certification:	Stillwater NELAP CERT # E-10219 Oklahoma City NELAP CERT # E-10414
New Hampshire Cert.:	Oklahoma City Drinking Water NH ELAP Lab ID # 2072
Texas Certification:	Stillwater Drinking Water NELAP CERT # T105704533-14-1
Method Reference:	40 CFR 136, 141, and 261 Methods for Chemical Analysis of Water and Wastes EPA-600/4-79-020, March 1983. Test Methods for Evaluating Solid Wastes, SW-846, Final Update III. Standard Methods 1998 (20th Edition), Standard Methods 2005 (21st Edition) and Standard Methods 2011 (22nd Edition) for the Examination of Water and Wastewater.
Analysis Reference:	If qualifiers present in "Prep Info" or "Analysis Info", then analysis performed as follows: @= Tulsa Lab and * = OKC Lab. If no qualifiers present, then analysis performed at Stillwater Lab.

Accurate Environmental Laboratories certify that the test results performed at the Stillwater lab meet all requirements of NELAP. Any exceptions to this can be found in the report footer or Quality Control Section of the report.

This report is to only be replicated in its entirety.

Accurate Environmental sampling protocol was followed for any sampling performed by Accurate Field Services.

Sample: *MW-1 MK-126804* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 1/8/19 11:24 **Lab Log#** BA09002-01

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.434	01/17/19 14:20	01/22/19 16:32
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.465 pCi/L			01/17/19 14:20	01/22/19 16:32
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.372	01/18/19 09:25	01/21/19 14:40
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.254 pCi/L			01/18/19 09:25	01/21/19 14:40

Sample: *MW-2 MK-126805* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 1/8/19 11:51 **Lab Log#** BA09002-02

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	1.33 pCi/L		0.535	01/17/19 14:20	01/24/19 14:29
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.388 pCi/L			01/17/19 14:20	01/24/19 14:29
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.252	01/18/19 09:25	01/21/19 14:40
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.138 pCi/L			01/18/19 09:25	01/21/19 14:40

Sample: *MW-3 MK-126806* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 1/8/19 12:06 **Lab Log#** BA09002-03

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.554	01/17/19 14:20	01/24/19 14:29
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.438 pCi/L			01/17/19 14:20	01/24/19 14:29
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.211	01/18/19 09:25	01/21/19 14:40
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.145 pCi/L			01/18/19 09:25	01/21/19 14:40

Sample: *MW-4 MK-126807* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 1/8/19 12:41 **Lab Log#** BA09002-04

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	0.835 pCi/L		0.646	01/17/19 14:20	01/25/19 09:10
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.380 pCi/L			01/17/19 14:20	01/25/19 09:10
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	0.345 pCi/L		0.262	01/18/19 09:25	01/21/19 14:40
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.258 pCi/L			01/18/19 09:25	01/21/19 14:40

Sample: *MW-5 MK-126808* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 1/8/19 13:02 **Lab Log#** BA09002-05

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL pCi/L		0.663	01/17/19 14:20	02/01/19 11:56
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.427 pCi/L			01/17/19 14:20	02/01/19 11:56
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.273	01/18/19 09:25	01/21/19 14:40
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.117 pCi/L			01/18/19 09:25	01/21/19 14:40

Sample: *MW-5 DUP MK-126809* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 1/8/19 12:06 **Lab Log#** BA09002-06

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	0.914 pCi/L		0.501	01/17/19 14:20	02/01/19 11:56
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.373 pCi/L			01/17/19 14:20	02/01/19 11:56
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.252	01/18/19 09:25	01/21/19 14:40
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.196 pCi/L			01/18/19 09:25	01/21/19 14:40

Sample: *Blank Water MK-126810* **Location Code:** **PWSID#:**

Collection Type: Grab **Sample Time:** 1/8/19 13:29 **Lab Log#** BA09002-07

Method/Parameter	Test	Result	Notes	PQL#	Prep Info	Analysis Info
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	0.948 pCi/L		0.610	01/17/19 14:20	02/01/19 11:56
Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Uncertainty +/-	0.352 pCi/L			01/17/19 14:20	02/01/19 11:56
Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL pCi/L		0.309	01/18/19 09:25	01/21/19 14:40
Radium 226 - SM7500RaB (Cert #9517/D9923)	Uncertainty +/-	0.130 pCi/L			01/18/19 09:25	01/21/19 14:40

Notes and Definitions

***Alpha, Beta and Radium analysis performed under NELAC certification NJ OK001 and OK 9517.

MCL	Analyte concentration may exceed Maximum Contaminant Limit (MCL) for EPA Primary or Secondary Drinking Water Regulations.
###	Analyte concentration may exceed regulatory limit.
PQL	Practical Quantitation Limit - the method reporting limit (MRL) adjusted for any dilutions or other changes made to the sample to deal with interferences/matrix effects
BPQL	Below Practical Quantitation Limit (if applicable).

The "Prep Date" of the QC analysis coincides with the characters of the appropriate QC Lab ID. (Example: 19 A 02 15 - BLK = 2019, Jan 2, Batch #15 - Blank)

Lab Manager

Quality Control Data

Blank Data

QC Lab #	Test Group	Test	Result		PQL	Flags
19B1213-BLK1	Radium 228 - EPA 904/9320 (Cert #9517/D9923)	Radium 228	BPQL	pCi/L	0.272	
19B1214-BLK1	Radium 226 - SM7500RaB (Cert #9517/D9923)	Radium 226	BPQL	pCi/L	0.081	

Attachment 2 : Analytical Report

* Complete Entire COC to be in Compliance*

Chain of Custody

Accurate Environmental Labs

☐ RUSH Due Date

Client Name- OG&E Muskogee Power Plant

Project Name- CCR Groundwater Monitoring

Accurate Work Order #	Date Sample Taken	Time Sample Taken	Matrix or Source (Refer below)	Grab (G) or Comp (C)	Client I.D. / Sample Location or DEQ / EPA Location Code	Field Results (pH, Temp, Chlorine, ...) (note analysis & units)	Sample Preserv. & Container →	Cool < 4°C	Cool < 4°C	Cool < 4°C HNO3	Cool < 4°C	Cool < 4°C	Cool < 4°C
							Analysis Requested →	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals* (see comments)	Radium 226 and 228 combined	Mercury (EPA 245.1)	Fluoride (EPA 300)
BA09002							# of Container ↓						
-01	1/08/19	1124	GW	G	MW-1 MK- 126804		3	X		X	X	X	
-02	1/08/19	1151	GW	G	MW-2 MK- 126805		3	X	X	X	X	X	
-03	1/08/19	1206	GW	G	MW-3 MK- 126806		3	X	X	X	X		X
-04	1/08/19	1241	GW	G	MW-4 MK- 126807		3	X	X		X		X
-05	1/08/19	1302	GW	G	MW-5 MK- 126808		3		X	X	X	X	X

On-Site Info. Raw Alkalinity (TOC Raw)= _____ mg/L Turbidity (E.Coli)= _____ ntu

Matrix Codes DW = Drinking Water WW = Wastewater SL = Sludge O = Other_Groundwater

E.Coli Source- GWUDI-FS= Groundwater under direct influence of Flowing Stream GWUDI-RL= Groundwater under direct influence of Reservoir/Lake

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

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Meter Type	Standards	Final Read.	Date	Time	Initials

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Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the sample(s) is/are representative of a typical operating day discharge for the above facility. Signature: Date/Time

Sampled By: Tad Dow, Jason Childress Company: Oklahoma Gas & Electric Sample Method: Grab

Relinquished By: Date/Time 1-9-19 0810 Received By: Date/Time 1-9-19 0810

☐ Relinquished to Lab By: Date/Time 944 Received at Lab By: Rec'd °C 0.6°C Date/Time 1/9/19

☐ Rel'd to Log-In Fridge By:

Reporting Requirements (standard 10-15 working days) | Compliance Reporting? Yes or No (DMR, PWS,) | Oklahoma PWS ID # | RUSH Request (if available) _____ (Working Days)

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1A0900						
-06	1/08/19	1206	GW	G	MW-3 DUP MK-126809	
-07	1/08/19	1329	GW	G	Blank Water MK-126810	

Sample Preserv. & Container →	Cool < 4°C	Cool < 4°C	Cool < 4°C HNO3	Cool < 4°C	Cool < 4°C	Cool < 4°C	
Analysis Requested →	Boron, Calcium, Chloride, Fluoride, Sulfate	TDS	Metals* see comments	Radium 226 and 228 combined	Mercury (EPA 245.1)	Lithium (EPA 200.7)	
# of Container ↓							
	3	X	X	X	X	X	X
	3	X	X	X	X	X	X

On-Site Info: Raw Alkalinity (TOC Raw)= _____ mg/L Turbidity (E.Coli)= _____ ntu

Matrix Codes: DW = Drinking Water WW = Wastewater SL = Sludge O = Other_Groundwater

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Field Instrument Calibration –

Meter Type	Standards	Final Read.	Date , Time	Initials

Comments: Boron (EPA 200.8), Calcium (EPA 200.7), Chloride (EPA 300), Fluoride (EPA 300), Sulfate (EPA 300), *Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Lead, Lithium, Molybdenum, Selenium, Thallium (EPA 200.8)

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-- All samples are scheduled to be disposed of in 4 weeks of receipt at Accurate, --

-- Hazardous samples will be returned to client or will be disposed of for a fee --

Certification by Company Official: I hereby certify that the above sampling occurred during a period such that the samples taken are representative of a typical operating day discharge for the above facility. Signature: _____ Date/Time _____

Sampled By: Tad Dow, Jason Childress Company: Oklahoma Gas & Electric Sample Method: Grab

Relinquished By: _____ Date/Time 1-9-19 0930

☐ Relinquished to Lab By: _____

☐ Rel'd to Lab-In Fridge By: _____ Date/Time _____

Received By: _____ Date/Time 1-10-19 0930

Received at Lab By: _____ Rec'd °C 1.6°C Date/Time _____

Reporting Requirements (standard 10-15 working days) | Compliance Reporting? Yes or No (DMR, PWS,) | Oklahoma PWS ID # | RUSH Request (if available) _____ (Working Days)

Mail Report: Smithsca@oge.com, dowta@oge.com

Address: 5501 Three Forks Road, Ft. Gibson, OK 74434

Phone #: (405) 553-4079 Fax #: (405) 553-4063

Email:

Mail Invoice: Email invoice to:

Address: APVendorInvoices@oge.com

Bid # -

PO # - 4500883927

Phone #: 405-553-4079 Fax #: 405-553-4063

www.accuratelabs.com (800) 516-5227

505 South Lowry Street Stillwater, OK 74074 Phone: (405) 372-5300 Fax: (405) 372-5396

3910 E. 51st Street Tulsa, OK 74135 Phone: (918) 663-5400 Fax: (918) 663-6300

12036 N. Pennsylvania Oklahoma City, OK 73120 Phone: (405) 751-3132 Fax: (405) 751-3108

Attachment 2 : pH and Temperature Log

Date	Sample	Time (Grab)	Time (Analyzed)	pH	Temp (C)	Sample ID #
3/14/2018	MW 01	1211	1224	7.03	17.9	MK126482
3/14/2018	MW 02	1238	1246	7.07	17.5	MK126483
3/14/2018	MW 03	1257	1305	6.93	17.7	MK126484
3/14/2018	MW 04	1329	1335	6.79	18.7	MK126485
3/14/2018	MW 05	1347	1353	6.91	18.6	MK126486
4/3/2018	MW 01	1059	1112	7.09	17.5	MK126503
4/3/2018	MW 02	1120	1133	6.99	17.2	MK126504
4/3/2018	MW 03	1142	1153	6.86	17.3	MK126505
4/3/2018	MW 04	1204	1214	6.72	17.6	MK126506
4/3/2018	MW 05	1224	1232	6.82	17.3	MK126507
4/27/2018	MW 01	1110	1118	6.99	16.6	MK126527
4/27/2018	MW 02	1130	1138	6.89	16.7	MK126528
4/27/2018	MW 03	1155	1203	6.84	17.2	MK126529
4/27/2018	MW 04	1222	1230	6.67	17.9	MK126530
4/27/2018	MW 05	1241	1247	6.78	17.8	MK126531
5/23/2018	MW 01	1057	1103	6.98	17.5	MK126551
5/23/2018	MW 02	1143	1151	6.92	17.5	MK126552
5/23/2018	MW 03	1206	1213	6.83	17.6	MK126553
5/23/2018	MW 04	1232	1239	6.68	18.4	MK126554
5/23/2018	MW 05	1254	1300	6.79	18.3	MK126555
6/14/2018	MW 01	1001	1010	6.97	18.7	MK126589
6/14/2018	MW 02	1030	1040	6.9	18.8	MK126590
6/14/2018	MW 03	1110	1120	6.82	19.8	MK126591
6/14/2018	MW 04	1140	1147	6.68	19	MK126592
6/14/2018	MW 05	1205	1213	6.8	19.7	MK126593
6/27/2018	MW 01	1032	1040	6.94	19	MK126610
6/27/2018	MW 02	1100	1109	6.9	20	Mk126611
6/27/2018	MW 03	1125	1136	6.8	19.8	MK126612
6/27/2018	MW 04	1155	1204	6.66	19.8	MK126613
6/27/2018	MW 05	1218	1226	6.78	19.8	MK126614
7/19/2018	MW 01	935	941	6.95	19.7	MK126635
7/19/2018	MW 02	957	1007	6.91	20	MK126636
7/19/2018	MW 03	1018	1029	6.79	19.6	MK126637
7/19/2018	MW 04	1046	1050	6.67	19.5	MK126638
7/19/2018	MW 05	1110	1117	6.78	20.3	MK126639
8/2/2018	MW 01	931	941	6.99	19.3	MK126652
8/2/2018	MW 02	1000	1009	6.92	19.3	MK126653
8/2/2018	MW 03	1025	1037	6.83	19.8	MK126654
8/2/2018	MW 04	1051	1100	6.7	19.1	MK126655
8/2/2018	MW 05	1113	1123	6.8	19.8	MK126656
8/23/2018	MW 01	940	950	6.97	20	MK126678
8/23/2018	MW 02	1005	1013	6.91	19.7	MK126679
8/23/2018	MW 03	1025	1034	6.95	19.3	MK126680
8/23/2018	MW 04	1102	1109	6.69	19.1	MK126681
8/23/2018	MW 05	1121	1129	6.78	20	MK126682
1/15/2019	MW 01	1315	1327	7.06	17.6	MK126821

Attachment 2 : pH and Temperature Log

1/15/2019	MW 02	1350	1358	6.96	17.6	MK126822
1/15/2019	MW 03	1435	1445	7.02	17.3	MK126823
1/15/2019	MW 04	1524	1532	6.8	17.9	MK126824
1/15/2019	MW 05	1547	1556	6.86	18.5	MK126825
4/17/2019	MW 01	1207	1215	7	16.1	MK126884
4/17/2019	MW 02	1227	1234	6.93	16.3	MK126885
4/17/2019	MW 03	1245	1253	6.88	16.1	MK126886
4/17/2019	MW 04	1308	1316	6.71	17.5	MK126887
4/17/2019	MW 05	1325	1332	6.82	17.6	MK126888

Attachment 2
MW01 Sample Data Summary

3/14/2018	Parameter	Result		4/3/2018	Parameter	Result		5/23/2018	Parameter	Result		6/14/2018	Parameter	Result	
	Chloride	1.68	mg/L		Chloride	1.21	mg/L		Chloride	0.881	mg/L		Chloride	0.0822	mg/L
	Flouride	0.26	mg/L		Flouride	0.19	mg/L		Flouride	0.22	mg/L		Flouride	0.24	mg/L
	Sulfate	22	mg/L		Sulfate	19.7	mg/L		Sulfate	14.9	mg/L		Sulfate	12.8	mg/L
	TDS	424	mg/L		TDS	392	mg/L		TDS	386	mg/L		TDS	413	mg/L
0.006	Antimony	BPQL	mg/L	0.006	Antimony	BPQL	mg/L	0.006	Antimony	BPQL	mg/L	0.006	Antimony	BPQL	mg/L
0.01	Arsenic	BPQL	mg/L	0.01	Arsenic	BPQL	mg/L	0.01	Arsenic	0.012	mg/L	0.01	Arsenic	BPQL	mg/L
2	Barium	0.184	mg/L	2	Barium	0.18	mg/L	2	Barium	0.182	mg/L	2	Barium	0.17	mg/L
0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L
	Boron	0.093	mg/L		Boron	0.074	mg/L		Boron	0.087	mg/L		Boron	0.079	mg/L
0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L
	Calcium	116	mg/L		Calcium	112	mg/L		Calcium	96	mg/L		Calcium	112	mg/L
0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L		Lead	BPQL	mg/L		Lead	BPQL	mg/L		Lead	BPQL	mg/L
	Lithium	BPQL	mg/L		Lithium	BPQL	mg/L		Lithium	BPQL	mg/L		Lithium	BPQL	mg/L
0.002	Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L
	Molybdenum	BPQL	mg/L		Molybdenum	BPQL	mg/L		Molybdenum	BPQL	mg/L		Molybdenum	BPQL	mg/L
0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L
0.002	Thallium	0.001	mg/L	0.002	Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L

5/23/2018	Parameter	Test	Result		6/14/2018	Parameter	Test	Result		6/27/2018	Parameter	Test	Result	
	Radium 228	Radium 228	BPQL	pCi/L		Radium 228	Radium 228	BPQL	pCi/L		Radium 228	Radium 228	BPQL	pCi/L
		Uncertainty +/-	0.579	pCi/L			Uncertainty +/-	0.489	pCi/L			Uncertainty +/-	0.349	pCi/L
	Radium 226	Radium 226	BPQL	pCi/L		Radium 226	Radium 226	BPQL	pCi/L		Radium 226	Radium 226	BPQL	pCi/L
		Uncertainty +/-	0.351	pCi/L			Uncertainty +/-	0.199	pCi/L			Uncertainty +/-	0.428	pCi/L
5 pCi/L					5 pCi/L					5 pCi/L				

Note: Radium samples not available for first two sample events (3/14/18 & 4/3/18), therefore additional samples were taken to make up the reuired eight (8) samples.

Attachment 2
MW01 Sample Data Summary

6/27/2018	Parameter	Result		7/19/2018	Parameter	Result		8/2/2018	Parameter	Result		8/23/2018	Parameter	Result	
	Chloride	0.715	mg/L		Chloride	0.597	mg/L		Chloride	0.632	mg/L		Chloride	0.546	mg/L
	Flouride	0.24	mg/L		Flouride	0.21	mg/L		Flouride	0.21	mg/L		Flouride	0.2	mg/L
	Sulfate	8.98	mg/L		Sulfate	7.13	mg/L		Sulfate	6.9	mg/L		Sulfate	6.82	mg/L
	TDS	397	mg/L		TDS	389	mg/L		TDS	425	mg/L		TDS	400	mg/L
0.006	Antimony	BPQL	mg/L	0.006	Antimony	BPQL	mg/L	0.006	Antimony	BPQL	mg/L	0.006	Antimony	BPQL	mg/L
0.01	Arsenic	0.0007	mg/L	0.01	Arsenic	BPQL	mg/L	0.01	Arsenic	BPQL	mg/L	0.01	Arsenic	BPQL	mg/L
2	Barium	0.154	mg/L	2	Barium	0.182	mg/L	2	Barium	0.194	mg/L	2	Barium	0.177	mg/L
0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L
	Boron	0.076	mg/L		Boron	0.077	mg/L		Boron	0.082	mg/L		Boron	0.082	mg/L
0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L
	Calcium	109	mg/L		Calcium	110	mg/L		Calcium	105	mg/L		Calcium	110	mg/L
0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L		Lead	BPQL	mg/L		Lead	0.0008	mg/L		Lead	BPQL	mg/L
	Lithium	BPQL	mg/L		Lithium	BPQL	mg/L		Lithium	BPQL	mg/L		Lithium	BPQL	mg/L
0.002	Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L
	Molybdenum	BPQL	mg/L		Molybdenum	BPQL	mg/L		Molybdenum	BPQL	mg/L		Molybdenum	BPQL	mg/L
0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L
0.002	Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L

7/19/2018	Parameter	Test	Result		8/2/2018	Parameter	Test	Result		8/23/2018	Parameter	Test	Result	
	Radium 228	Radium 228	BPQL	pCi/L		Radium 228	Radium 228	BPQL	pCi/L		Radium 228	Radium 228	BPQL	pCi/L
		Uncertainty +/-	435	pCi/L			Uncertainty +/-	0.418	pCi/L			Uncertainty +/-	0.531	pCi/L
	Radium 226	Radium 226	BPQL	pCi/L		Radium 226	Radium 226	0.539	pCi/L		Radium 226	Radium 226	0.225	pCi/L
		Uncertainty +/-	0.154	pCi/L			Uncertainty +/-	0.314	pCi/L			Uncertainty +/-	0.231	pCi/L
	5 pCi/L					5 pCi/L					5 pCi/L			

Attachment 2
MW01 Sample Data Summary

1/8/2019	Parameter	Result		4/17/2019	Parameter	Result	
	Chloride	BPQL	mg/L		Chloride	0.675	mg/L
	Flouride	0.26	mg/L		Flouride	0.26	mg/L
	Sulfate	6.07	mg/L		Sulfate	10.8	mg/L
	TDS	365	mg/L		TDS	388	mg/L
0.006	Antimony	BPQL	mg/L	0.006	Antimony	BPQL	mg/L
0.01	Arsenic	BPQL	mg/L	0.01	Arsenic	0.0006	mg/L
2	Barium	0.167	mg/L	2	Barium	0.172	mg/L
0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L
	Boron	0.079	mg/L		Boron	0.063	mg/L
0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L
	Calcium	107	mg/L		Calcium	108	mg/L
0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L		Lead	BPQL	mg/L
	Lithium	BPQL	mg/L		Lithium	BPQL	mg/L
0.002	Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L
	Molybdenum	BPQL	mg/L		Molybdenum	BPQL	mg/L
0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L
0.002	Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L

9/12/2018	Parameter	Test	Result		9/26/2018	Parameter	Test	Result		1/8/2019	Parameter	Test	Result		4/17/2019	Parameter	Test	Result	
	Radium 228	Radium 228	BPQL	pCi/L		Radium 228	Radium 228	0.65	pCi/L		Radium 228	Radium 228	BPQL	pCi/L		Radium 22	Radium 22	6.46	pCi/L
		Uncertainty +/-	0.628	pCi/L			Uncertainty +/-	0.416	pCi/L			Uncertainty +/-	0.455	pCi/L			Uncertaint	0.422	pCi/L
	Radium 226	Radium 226	0.343	pCi/L		Radium 226	Radium 226	BPQL	pCi/L		Radium 226	Radium 226	BPQL	pCi/L		Radium 22	Radium 22	BPQL	pCi/L
		Uncertainty +/-	0.22	pCi/L			Uncertainty +/-	0.281	pCi/L			Uncertainty +/-	0.254	pCi/L			Uncertaint	0.184	pCi/L
5 pCi/L					5 pCi/L					5 pCi/L					5 pCi/L				

Attachment 2
MW02 Sample Data Summary

3/14/2018	Parameter	Result	
	Chloride	39.2	mg/L
	Flouride	0.25	mg/L
	Sulfate	99.3	mg/L
	TDS	544	mg/L
0.006	Antimony	BPQL	mg/L
0.01	Arsenic	BPQL	mg/L
2	Barium	0.235	mg/L
0.004	Beryllium	BPQL	mg/L
	Boron	0.238	mg/L
0.005	Cadmium	BPQL	mg/L
	Calcium	127	mg/L
0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L
	Lithium	BPQL	mg/L
0.002	Mercury	BPQL	µg/L
	Molybdenum	BPQL	mg/L
0.05	Selenium	BPQL	mg/L
0.002	Thallium	BPQL	mg/L

4/3/2018	Parameter	Result	
	Chloride	31.6	mg/L
	Flouride	0.27	mg/L
	Sulfate	88.7	mg/L
	TDS	522	mg/L
0.006	Antimony	BPQL	mg/L
0.01	Arsenic	BPQL	mg/L
2	Barium	0.231	mg/L
0.004	Beryllium	BPQL	mg/L
	Boron	0.216	mg/L
0.005	Cadmium	BPQL	mg/L
	Calcium	124	mg/L
0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L
	Lithium	BPQL	mg/L
0.002	Mercury	BPQL	µg/L
	Molybdenum	BPQL	mg/L
0.05	Selenium	BPQL	mg/L
0.002	Thallium	BPQL	mg/L

5/23/2018	Parameter	Result	
	Chloride	34.1	mg/L
	Flouride	0.24	mg/L
	Sulfate	83.4	mg/L
	TDS	406	mg/L
0.006	Antimony	BPQL	mg/L
0.01	Arsenic	0.013	mg/L
2	Barium	0.245	mg/L
0.004	Beryllium	BPQL	mg/L
	Boron	0.252	mg/L
0.005	Cadmium	BPQL	mg/L
	Calcium	106	mg/L
0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L
	Lithium	BPQL	mg/L
0.002	Mercury	BPQL	µg/L
	Molybdenum	BPQL	mg/L
0.05	Selenium	BPQL	mg/L
0.002	Thallium	BPQL	mg/L

6/14/2018	Parameter	Result	
	Chloride	36.3	mg/L
	Flouride	0.23	mg/L
	Sulfate	94.5	mg/L
	TDS	580	mg/L
0.006	Antimony	BPQL	mg/L
0.01	Arsenic	BPQL	mg/L
2	Barium	0.225	mg/L
0.004	Beryllium	BPQL	mg/L
	Boron	0.217	mg/L
0.005	Cadmium	BPQL	mg/L
	Calcium	128	mg/L
0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L
	Lithium	BPQL	mg/L
0.002	Mercury	BPQL	µg/L
	Molybdenum	BPQL	mg/L
0.05	Selenium	BPQL	mg/L
0.002	Thallium	BPQL	mg/L

5/23/2018	Parameter	Test	Result	
	Radium 228	Radium 228	BPQL	pCi/L
		Uncertainty +/-	0.719	pCi/L
	Radium 226	Radium 226	0.573	pCi/L
		Uncertainty +/-	0.461	pCi/L
5 pCi/L				

6/14/2018	Parameter	Test	Result	
	Radium 228	Radium 228	BPQL	pCi/L
		Uncertainty +	0.51	pCi/L
	Radium 226	Radium 226	BPQL	pCi/L
		Uncertainty +	0.199	pCi/L
5 pCi/L				

6/27/2018	Parameter	Test	Result	
	Radium 228	Radium 228	BPQL	pCi/L
		Uncertainty +/-	0.433	pCi/L
	Radium 226	Radium 226	BPQL	pCi/L
		Uncertainty +/-	0.489	pCi/L
5 pCi/L				

Note: Radium samples not available for first two sample events (3/14/18 & 4/3/18), therefore additional samples were taken to make up the reuired eight (8) samples.

Attachment 2
MW02 Sample Data Summary

6/27/2018	Parameter	Result		7/19/2018	Parameter	Result		8/2/2018	Parameter	Result		8/23/2018	Parameter	Result	
	Chloride	42.1	mg/L		Chloride	46.8	mg/L		Chloride	41	mg/L		Chloride	38.2	mg/L
	Flouride	0.25	mg/L		Flouride	0.22	mg/L		Flouride	0.22	mg/L		Flouride	0.22	mg/L
	Sulfate	105	mg/L		Sulfate	109	mg/L		Sulfate	112	mg/L		Sulfate	105	mg/L
	TDS	603	mg/L		TDS	595	mg/L		TDS	675	mg/L		TDS	691	mg/L
0.006	Antimony	BPQL	mg/L	0.006	Antimony	BPQL	mg/L	0.006	Antimony	BPQL	mg/L	0.006	Antimony	BPQL	mg/L
0.01	Arsenic	BPQL	mg/L	0.01	Arsenic	BPQL	mg/L	0.01	Arsenic	BPQL	mg/L	0.01	Arsenic	BPQL	mg/L
2	Barium	0.253	mg/L	2	Barium	0.25	mg/L	2	Barium	0.263	mg/L	2	Barium	0.255	mg/L
0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L
	Boron	0.215	mg/L		Boron	0.222	mg/L		Boron	0.223	mg/L		Boron	0.221	mg/L
0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L
	Calcium	132	mg/L		Calcium	132	mg/L		Calcium	133	mg/L		Calcium	136	mg/L
0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L		Lead	BPQL	mg/L		Lead	BPQL	mg/L		Lead	BPQL	mg/L
	Lithium	BPQL	mg/L		Lithium	BPQL	mg/L		Lithium	BPQL	mg/L		Lithium	BPQL	mg/L
0.002	Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L
	Molybdenum	BPQL	mg/L		Molybdenum	0.005	mg/L		Molybdenum	0.005	mg/L		Molybdenum	0.005	mg/L
0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L
0.002	Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L

7/19/2018	Parameter	Test	Result		8/2/2018	Parameter	Test	Result		8/23/2018	Parameter	Test	Result	
	Radium 228	Radium 228	BPQL	pCi/L		Radium 228	Radium 228	BPQL	pCi/L		Radium 228	Radium 228	BPQL	pCi/L
		Uncertainty +/-	0.413	pCi/L			Uncertainty +/-	0.436	pCi/L			Uncertainty +/-	0.588	pCi/L
	Radium 226	Radium 226	1.34	pCi/L		Radium 226	Radium 226	0.643	pCi/L		Radium 226	Radium 226	0.267	pCi/L
		Uncertainty +/-	0.451	pCi/L			Uncertainty +/-	0.434	pCi/L			Uncertainty +/-	0.245	pCi/L
	5	pCi/L				5	pCi/L				5	pCi/L		

Attachment 2
MW02 Sample Data Summary

	1/8/2019	Parameter	Result		4/17/2019	Parameter	Result	
		Chloride	34.5	mg/L		Chloride	31	mg/L
		Flouride	0.24	mg/L		Flouride	0.25	mg/L
		Sulfate	101	mg/L		Sulfate	94.8	mg/L
		TDS	578	mg/L		TDS	568	mg/L
0.006		Antimony	BPQL	mg/L	0.006	Antimony	BPQL	mg/L
0.01		Arsenic	BPQL	mg/L	0.01	Arsenic	BPQL	mg/L
2		Barium	0.243	mg/L	2	Barium	0.238	mg/L
0.004		Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L
		Boron	0.171	mg/L		Boron	0.152	mg/L
0.005		Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L
		Calcium	134	mg/L		Calcium	133	mg/L
0.1		Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L
		Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L
		Lead	BPQL	mg/L		Lead	BPQL	mg/L
		Lithium	BPQL	mg/L		Lithium	BPQL	mg/L
0.002		Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L
		Molybdenum	0.005	mg/L		Molybdenum	BPQL	mg/L
0.05		Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L
0.002		Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L

9/12/2018	Parameter	Test	Result	
	Radium 228	Radium 228	BPQL	pCi/L
		Uncertainty +/-	0.573	pCi/L
	Radium 226	Radium 226	BPQL	pCi/L
		Uncertainty +/-	0.117	pCi/L
5 pCi/L				

9/26/2018	Parameter	Test	Result	
	Radium 228	Radium 228	BPQL	pCi/L
		Uncertainty +/-	0.584	pCi/L
	Radium 226	Radium 226	BPQL	pCi/L
		Uncertainty +/-	0.311	pCi/L
5 pCi/L				

1/8/2019	Parameter	Test	Result	
	Radium 228	Radium 228	1.13	pCi/L
		Uncertainty +/-	0.388	pCi/L
	Radium 226	Radium 226	BPQL	pCi/L
		Uncertainty +/-	0.138	pCi/L
5 pCi/L				

4/17/2019	Parameter	Test	Result	
	Radium 22	Radium 22	1.43	pCi/L
		Uncertaint	0.348	pCi/L
	Radium 22	Radium 22	BPQL	pCi/L
		Uncertaint	0.734	pCi/L
5 pCi/L				

Attachment 2
MW03 Sample Data Summary

3/14/2018	Parameter	Result		4/3/2018	Parameter	Result		5/23/2018	Parameter	Result		6/14/2018	Parameter	Result	
	Chloride	166	mg/L		Chloride	135	mg/L		Chloride	140	mg/L		Chloride	162	mg/L
	Flouride	0.19	mg/L		Flouride	0.15	mg/L		Flouride	0.17	mg/L		Flouride	0.18	mg/L
	Sulfate	288	mg/L		Sulfate	185	mg/L		Sulfate	186	mg/L		Sulfate	188	mg/L
	TDS	1019	mg/L		TDS	976	mg/L		TDS	970	mg/L		TDS	1127	mg/L
0.006	Antimony	BPQL	mg/L	0.006	Antimony	BPQL	mg/L	0.006	Antimony	BPQL	mg/L	0.006	Antimony	BPQL	mg/L
0.01	Arsenic	0.013	mg/L	0.01	Arsenic	0.009	mg/L	0.01	Arsenic	0.017	mg/L	0.01	Arsenic	0.008	mg/L
2	Barium	0.311	mg/L	2	Barium	0.346	mg/L	2	Barium	0.355	mg/L	2	Barium	0.335	mg/L
0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L
	Boron	0.059	mg/L		Boron	0.071	mg/L		Boron	0.08	mg/L		Boron	0.065	mg/L
0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L
	Calcium	238	mg/L		Calcium	228	mg/L		Calcium	234	mg/L		Calcium	236	mg/L
0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L		Lead	BPQL	mg/L		Lead	BPQL	mg/L		Lead	BPQL	mg/L
	Lithium	BPQL	mg/L		Lithium	BPQL	mg/L		Lithium	BPQL	mg/L		Lithium	BPQL	mg/L
0.002	Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L
	Molybdenum	0.008	mg/L		Molybdenum	BPQL	mg/L		Molybdenum	0.005	mg/L		Molybdenum	0.005	mg/L
0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L
0.002	Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L

5/23/2018	Parameter	Test	Result		6/14/2018	Parameter	Test	Result		6/27/2018	Parameter	Test	Result	
	Radium 228	Radium 228	BPQL	pCi/L		Radium 228	Radium 228	1.08	pCi/L		Radium 228	Radium 228	0.878	pCi/L
		Uncertainty +/-	0.637	pCi/L			Uncertainty +/-	0.535	pCi/L			Uncertainty +/-	0.432	pCi/L
	Radium 226	Radium 226	0.629	pCi/L		Radium 226	Radium 226	BPQL	pCi/L		Radium 226	Radium 226	BPQL	pCi/L
		Uncertainty +/-	0.488	pCi/L			Uncertainty +/-	0.263	pCi/L			Uncertainty +/-	0.631	pCi/L
5 pCi/L					5 pCi/L					5 pCi/L				

Note: Radium samples not available for first two sample events (3/14/18 & 4/3/18), therefore additional samples were taken to make up the reuired eight (8) samples.

Attachment 2
MW08 Sample Data Summary

6/27/2018	Parameter	Result	
	Chloride	169	mg/L
	Flouride	0.18	mg/L
	Sulfate	196	mg/L
	TDS	1155	mg/L
0.006	Antimony	BPQL	mg/L
0.01	Arsenic	0.0009	mg/L
2	Barium	0.289	mg/L
0.004	Beryllium	BPQL	mg/L
	Boron	0.061	mg/L
0.005	Cadmium	BPQL	mg/L
	Calcium	242	mg/L
0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L
	Lithium	BPQL	mg/L
0.001	Mercury	BPQL	µg/L
	Molybdenum	BPQL	mg/L
0.05	Selenium	BPQL	mg/L
0.002	Thallium	BPQL	mg/L

7/19/2018	Parameter	Result	
	Chloride	178	mg/L
	Flouride	0.14	mg/L
	Sulfate	200	mg/L
	TDS	1102	mg/L
0.006	Antimony	BPQL	mg/L
0.01	Arsenic	BPQL	mg/L
2	Barium	0.327	mg/L
0.004	Beryllium	BPQL	mg/L
	Boron	0.067	mg/L
0.005	Cadmium	BPQL	mg/L
	Calcium	236	mg/L
0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L
	Lithium	BPQL	mg/L
0.002	Mercury	BPQL	µg/L
	Molybdenum	0.006	mg/L
0.05	Selenium	BPQL	mg/L
0.002	Thallium	BPQL	mg/L

8/2/2018	Parameter	Result	
	Chloride	177	mg/L
	Flouride	0.14	mg/L
	Sulfate	200	mg/L
	TDS	1199	mg/L
0.006	Antimony	BPQL	mg/L
0.01	Arsenic	BPQL	mg/L
2	Barium	0.332	mg/L
0.004	Beryllium	BPQL	mg/L
	Boron	0.071	mg/L
0.005	Cadmium	BPQL	mg/L
	Calcium	225	mg/L
0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L
	Lithium	BPQL	mg/L
0.001	Mercury	BPQL	µg/L
	Molybdenum	0.006	mg/L
0.05	Selenium	BPQL	mg/L
0.002	Thallium	BPQL	mg/L

8/23/2018	Parameter	Result	
	Chloride	178	mg/L
	Flouride	0.14	mg/L
	Sulfate	198	mg/L
	TDS	1155	mg/L
0.006	Antimony	BPQL	mg/L
0.01	Arsenic	BPQL	mg/L
2	Barium	0.327	mg/L
0.004	Beryllium	BPQL	mg/L
	Boron	0.072	mg/L
0.005	Cadmium	BPQL	mg/L
	Calcium	233	mg/L
0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L
	Lithium	BPQL	mg/L
0.002	Mercury	BPQL	µg/L
	Molybdenum	0.005	mg/L
0.05	Selenium	BPQL	mg/L
0.002	Thallium	BPQL	mg/L

7/19/2018	Parameter	Test	Result	
	Radium 228	Radium 228	BPQL	pCi/L
		Uncertainty +/-	0.562	pCi/L
	Radium 226	Radium 226	BPQL	pCi/L
		Uncertainty +/-	0.269	pCi/L
	5 pCi/L			

8/2/2018	Parameter	Test	Result	
	Radium 228	Radium 228	0.829	pCi/L
		Uncertainty +/-	0.425	pCi/L
	Radium 226	Radium 226	0.393	pCi/L
		Uncertainty +/-	0.297	pCi/L
	5 pCi/L			

8/23/2018	Parameter	Test	Result	
	Radium 228	Radium 228	2.09	pCi/L
		Uncertainty +/-	0.685	pCi/L
	Radium 226	Radium 226	0.488	pCi/L
		Uncertainty +/-	0.314	pCi/L
	5 pCi/L			

Attachment 2
MW03 Sample Data Summary

1/8/2019	Parameter	Result		4/17/2019	Parameter	Result	
	Chloride	105	mg/l		Chloride	116	mg/L
	Flouride	0.19	mg/L		Flouride	0.19	mg/L
	Sulfate	152	mg/L		Sulfate	156	mg/L
	TDS	920	mg/L		TDS	1002	mg/L
0.006	Antimony	BPQL	mg/L	0.006	Antimony	BPQL	mg/L
0.01	Arsenic	BPQL	mg/L	0.01	Arsenic	BPQL	mg/L
2	Barium	0.278	mg/L	2	Barium	0.273	mg/L
0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L
	Boron	0.097	mg/L		Boron	0.075	mg/L
0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L
	Calcium	198	mg/L		Calcium	203	mg/L
0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L		Lead	BPQL	mg/L
	Lithium	BPQL	mg/L		Lithium	BPQL	mg/L
0.002	Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L
	Molybdenum	BPQL	mg/L		Molybdenum	BPQL	mg/L
0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L
0.002	Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L

9/12/2018	Parameter	Test	Result		9/28/2018	Parameter	Test	Result	
	Radium 228	Radium 228	BPQL	pCi/L		Radium 228	Radium 228	BPQL	pCi/L
		Uncertainty +/-	0.618	pCi/L			Uncertainty +/-	0.383	pCi/L
	Radium 226	Radium 226	BPQL	pCi/L		Radium 226	Radium 226	0.271	pCi/L
		Uncertainty +/-	0.187	pCi/L			Uncertainty +/-	0.294	pCi/L
5	pCi/L				5	pCi/L			

1/8/2019	Parameter	Test	Result	
	Radium 228	Radium 228	BPQL	pCi/L
		Uncertainty +/-	0.438	pCi/L
	Radium 226	Radium 226	BPQL	pCi/L
		Uncertainty +/-	0.145	pCi/L
5	pCi/L			

4/17/2019	Parameter	Test	Result	
	Radium 22	Radium 22	BPQL	pCi/L
		Uncertaint	0.44	pCi/L
	Radium 22	Radium 22	0.533	pCi/L
		Uncertaint	0.308	pCi/L
5	pCi/L			

Attachment 2
MW04 Sample Date Summary

3/14/2018	Parameter	Result		4/3/2018	Parameter	Result		5/23/2018	Parameter	Result		6/14/2018	Parameter	Result	
	Chloride	139	mg/L		Chloride	130	mg/L		Chloride	139	mg/L		Chloride	138	mg/L
	Flouride	0.18	mg/L		Flouride	0.14	mg/L		Flouride	0.16	mg/L		Flouride	0.16	mg/L
	Sulfate	347	mg/L		Sulfate	335	mg/L		Sulfate	341	mg/L		Sulfate	339	mg/L
	TDS	1300	mg/L		TDS	1370	mg/L		TDS	1320	mg/L		TDS	1454	mg/L
0.006	Antimony	BPQL	mg/L	0.006	Antimony	BPQL	mg/L	0.005	Antimony	BPQL	mg/L	0.006	Antimony	BPQL	mg/L
0.01	Arsenic	BPQL	mg/L	0.01	Arsenic	0.009	mg/L	0.01	Arsenic	0.021	mg/L	0.01	Arsenic	0.007	mg/L
2	Barium	0.244	mg/L	2	Barium	0.245	mg/L	2	Barium	0.274	mg/L	2	Barium	0.251	mg/L
0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L
	Boron	0.077	mg/L		Boron	0.07	mg/L		Boron	0.085	mg/L		Boron	0.068	mg/L
0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L
	Calcium	331	mg/L		Calcium	328	mg/L		Calcium	292	mg/L		Calcium	340	mg/L
0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L		Lead	BPQL	mg/L		Lead	BPQL	mg/L		Lead	BPQL	mg/L
	Lithium	BPQL	mg/L		Lithium	BPQL	mg/L		Lithium	BPQL	mg/L		Lithium	BPQL	mg/L
0.002	Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L
	Molybdenum	0.007	mg/L		Molybdenum	0.006	mg/L		Molybdenum	0.006	mg/L		Molybdenum	0.006	mg/L
0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L
0.002	Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L

5/23/2018	Parameter	Test	Result		6/14/2018	Parameter	Test	Result		6/27/2018	Parameter	Test	Result	
	Radium 228	Radium 228	BPQL	pCi/L		Radium 228	Radium 228	BPQL	pCi/L		Radium 228	Radium 228	BPQL	pCi/L
		Uncertainty +/-	0.676	pCi/L			Uncertainty +/-	0.385	pCi/L			Uncertainty +/-	0.438	pCi/L
	Radium 226	Radium 226	0.548	pCi/L		Radium 226	Radium 226	BPQL	pCi/L		Radium 226	Radium 226	BPQL	pCi/L
		Uncertainty +/-	0.48	pCi/L			Uncertainty +/-	0.185	pCi/L			Uncertainty +/-	0.532	pCi/L
	$ pCi/L					$ pCi/L					$ pCi/L			

Note: Radium samples not available for first two sample events (3/14/18 & 4/3/18), therefore additional samples were taken to make up the reuired eight (8) samples.

Attachment 2
MW04 Sample Data Summary

6/27/2018	Parameter	Result	
	Chloride	141	mg/L
	Flouride	0.18	mg/L
	Sulfate	357	mg/L
	TDS	1535	mg/L
0.006	Antimony	BPQL	mg/L
0.01	Arsenic	0.0006	mg/L
2	Barium	0.231	mg/L
0.004	Beryllium	BPQL	mg/L
	Boron	0.063	mg/L
0.005	Cadmium	BPQL	mg/L
	Calcium	336	mg/L
0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L
	Lithium	BPQL	mg/L
0.002	Mercury	BPQL	µg/L
	Molybdenum	BPQL	mg/L
0.05	Selenium	BPQL	mg/L
0.002	Thallium	BPQL	mg/L

7/19/2018	Parameter	Result	
	Chloride	141	mg/L
	Flouride	0.14	mg/L
	Sulfate	363	mg/L
	TDS	1420	mg/L
0.006	Antimony	BPQL	mg/L
0.01	Arsenic	BPQL	mg/L
2	Barium	0.263	mg/L
0.004	Beryllium	BPQL	mg/L
	Boron	0.067	mg/L
0.005	Cadmium	BPQL	mg/L
	Calcium	345	mg/L
0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L
	Lithium	BPQL	mg/L
0.002	Mercury	BPQL	µg/L
	Molybdenum	0.005	mg/L
0.05	Selenium	BPQL	mg/L
0.002	Thallium	BPQL	mg/L

8/2/2018	Parameter	Result	
	Chloride	140	mg/L
	Flouride	0.14	mg/L
	Sulfate	368	mg/L
	TDS	1557	mg/L
0.006	Antimony	BPQL	mg/L
0.01	Arsenic	BPQL	mg/L
2	Barium	0.262	mg/L
0.004	Beryllium	BPQL	mg/L
	Boron	0.067	mg/L
0.005	Cadmium	BPQL	mg/L
	Calcium	329	mg/L
0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L
	Lithium	BPQL	mg/L
0.002	Mercury	BPQL	µg/L
	Molybdenum	0.005	mg/L
0.05	Selenium	BPQL	mg/L
0.002	Thallium	BPQL	mg/L

8/23/2018	Parameter	Result	
	Chloride	131	mg/L
	Flouride	0.16	mg/L
	Sulfate	351	mg/L
	TDS	1460	mg/L
0.006	Antimony	BPQL	mg/L
0.01	Arsenic	BPQL	mg/L
2	Barium	0.249	mg/L
0.004	Beryllium	BPQL	mg/L
	Boron	0.021	mg/L
0.005	Cadmium	BPQL	mg/L
	Calcium	320	mg/L
0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L
	Lithium	BPQL	mg/L
0.002	Mercury	BPQL	µg/L
	Molybdenum	0.006	mg/L
0.05	Selenium	BPQL	mg/L
0.002	Thallium	BPQL	mg/L

7/19/2018	Parameter	Test	Result	
	Radium 228	Radium 228	1.29	pCi/L
		Uncertainty +/-	0.495	pCi/L
	Radium 226	Radium 226	0.311	pCi/L
		Uncertainty +/-	0.233	pCi/L
	5 pCi/L			

8/2/2018	Parameter	Test	Result	
	Radium 228	Radium 228	0.88	pCi/L
		Uncertainty +/-	0.58	pCi/L
	Radium 226	Radium 226	0.213	pCi/L
		Uncertainty +/-	0.189	pCi/L
	5 pCi/L			

8/23/2018	Parameter	Test	Result	
	Radium 228	Radium 228	2.03	pCi/L
		Uncertainty +/-	0.661	pCi/L
	Radium 226	Radium 226	0.488	pCi/L
		Uncertainty +/-	0.213	pCi/L
	5 pCi/L			

Attachment 2
MW04 Sample Data Summary

	1/8/2019 Parameter	Result		4/17/2019 Parameter	Result
	Chloride	107 mg/L		Chloride	126 mg/L
	Flouride	0.23 mg/L		Flouride	0.2 mg/L
	Sulfate	338 mg/L		Sulfate	369 mg/L
	TDS	1346 mg/L		TDS	1465 mg/L
0.006	Antimony	BPQL mg/L	0.006	Antimony	BPQL mg/L
0.01	Arsenic	BPQL mg/L	0.01	Arsenic	BPQL mg/L
2	Barium	0.215 mg/L	2	Barium	0.25 mg/L
0.004	Beryllium	BPQL mg/L	0.004	Beryllium	BPQL mg/L
	Boron	0.085 mg/L		Boron	0.562 mg/L
0.005	Cadmium	BPQL mg/L	0.005	Cadmium	BPQL mg/L
	Calcium	317 mg/L		Calcium	333 mg/L
0.1	Chromium	BPQL mg/L	0.1	Chromium	BPQL mg/L
	Cobalt	BPQL mg/L		Cobalt	BPQL mg/L
	Lead	BPQL mg/L		Lead	BPQL mg/L
	Lithium	BPQL mg/L		Lithium	BPQL mg/L
0.002	Mercury	BPQL µg/L	0.005	Mercury	BPQL µg/L
	Molybdenum	0.006 mg/L		Molybdenum	0.005 mg/L
0.05	Selenium	BPQL mg/L	0.05	Selenium	BPQL mg/L
0.002	Thallium	BPQL mg/L	0.002	Thallium	BPQL mg/L

9/12/2018 Parameter	Test	Result	9/26/2018 Parameter	Test	Result	1/8/2019 Parameter	Test	Result	4/17/2019 Parameter	Test	Result
Radium 228	Radium 228	1.38 pCi/L	Radium 228	Radium 228	1.51 pCi/L	Radium 228	Radium 228	0.555 pCi/L	Radium 22	Radium 22	1.22 pCi/L
	Uncertainty +/-	0.369 pCi/L		Uncertainty +/-	0.449 pCi/L		Uncertainty +/-	0.38 pCi/L		Uncertaint	0.374 pCi/L
Radium 226	Radium 226	0.507 pCi/L	Radium 226	Radium 226	BPQL pCi/L	Radium 226	Radium 226	0.345 pCi/L	Radium 22	Radium 22	0.58 pCi/L
	Uncertainty +/-	0.294 pCi/L		Uncertainty +/-	0.292 pCi/L		Uncertainty +/-	0.258 pCi/L		Uncertaint	0.388 pCi/L
5 pCi/L			5 pCi/L			5 pCi/L			5 pCi/L		

Attachment 2
MW05 Sample Data Summary

3/14/2018	Parameter	Result		4/3/2018	Parameter	Result		5/23/2018	Parameter	Result		6/14/2018	Parameter	Result	
	Chloride	29.9	mg/L		Chloride	29	mg/L		Chloride	25	mg/L		Chloride	24.8	mg/L
	Flouride	0.18	mg/L		Flouride	0.14	mg/L		Flouride	0.15	mg/L		Flouride	0.16	mg/L
	Sulfate	159	mg/L		Sulfate	145	mg/L		Sulfate	144	mg/L		Sulfate	144	mg/L
	TDS	826	mg/L		TDS	830	mg/L		TDS	824	mg/L		TDS	867	mg/L
0.006	Antimony	BPQL	mg/L	0.006	Antimony	BPQL	mg/L	0.006	Antimony	BPQL	mg/L	0.005	Antimony	BPQL	mg/L
0.01	Arsenic	BPQL	mg/L	0.01	Arsenic	0.005	mg/L	0.01	Arsenic	0.019	mg/L	0.01	Arsenic	BPQL	mg/L
2	Barium	0.147	mg/L	2	Barium	0.15	mg/L	2	Barium	0.16	mg/L	2	Barium	0.142	mg/L
0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L
	Boron	0.274	mg/L		Boron	0.24	mg/L		Boron	0.283	mg/L		Boron	0.247	mg/L
0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L
	Calcium	202	mg/L		Calcium	212	mg/L		Calcium	182	mg/L		Calcium	204	mg/L
0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L		Lead	BPQL	mg/L		Lead	BPQL	mg/L		Lead	BPQL	mg/L
	Lithium	BPQL	mg/L		Lithium	BPQL	mg/L		Lithium	BPQL	mg/L		Lithium	BPQL	mg/L
0.002	Mercury	BPQL	µg/L	0.001	Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L
	Molybdenum	BPQL	mg/L		Molybdenum	BPQL	mg/L		Molybdenum	BPQL	mg/L		Molybdenum	BPQL	mg/L
0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L
0.002	Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L

5/23/2018	Parameter	Test	Result		6/14/2018	Parameter	Test	Result		6/27/2018	Parameter	Test	Result	
	Radium 228	Radium 228	1.12	pCi/L		Radium 228	Radium 228	BPQL	pCi/L		Radium 228	Radium 228	BPQL	pCi/L
		Uncertainty +/-	0.597	pCi/L			Uncertainty +/-	0.546	pCi/L			Uncertainty +/-	0.378	pCi/L
	Radium 226	Radium 226	BPQL	pCi/L		Radium 226	Radium 226	BPQL	pCi/L		Radium 226	Radium 226	BPQL	pCi/L
		Uncertainty +/-	0.341	pCi/L			Uncertainty +/-	0.211	pCi/L			Uncertainty +/-	0.518	pCi/L
5 pCi/L					5 pCi/L					5 pCi/L				

Note: Radium samples not available for first two sample events (3/14/18 & 4/3/18), therefore additional samples were taken to make up the reuired eight (8) samples.

Attachment 2
MW06 Sample Data Summary

6/27/2018	Parameter	Result		7/19/2018	Parameter	Result		8/2/2018	Parameter	Result		8/23/2018	Parameter	Result	
	Chloride	24.6	mg/L		Chloride	23.9	mg/L		Chloride	24	mg/L		Chloride	29.2	mg/L
	Flouride	0.14	mg/L		Flouride	0.12	mg/L		Flouride	0.13	mg/L		Flouride	0.14	mg/L
	Sulfate	148	mg/L		Sulfate	147	mg/L		Sulfate	148	mg/L		Sulfate	136	mg/L
	TDS	877	mg/L		TDS	839	mg/L		TDS	894	mg/L		TDS	831	mg/L
0.006	Antimony	BPQL	mg/L	0.006	Antimony	BPQL	mg/L	0.006	Antimony	BPQL	mg/L	0.006	Antimony	BPQL	mg/L
0.01	Arsenic	0.0005	mg/L	0.01	Arsenic	BPQL	mg/L	0.01	Arsenic	BPQL	mg/L	0.01	Arsenic	BPQL	mg/L
2	Barium	0.176	mg/L	2	Barium	0.153	mg/L	2	Barium	0.152	mg/L	2	Barium	0.154	mg/L
0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L	0.004	Beryllium	BPQL	mg/L
	Boron	0.279	mg/L		Boron	0.251	mg/L		Boron	0.265	mg/L		Boron	0.295	mg/L
0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L	0.005	Cadmium	BPQL	mg/L
	Calcium	207	mg/L		Calcium	203	mg/L		Calcium	194	mg/L		Calcium	194	mg/L
0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L	0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L		Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L		Lead	BPQL	mg/L		Lead	BPQL	mg/L		Lead	BPQL	mg/L
	Lithium	BPQL	mg/L		Lithium	BPQL	mg/L		Lithium	BPQL	mg/L		Lithium	BPQL	mg/L
0.002	Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L	0.002	Mercury	BPQL	µg/L
	Molybdenum	0.005	mg/L		Molybdenum	0.005	mg/L		Molybdenum	0.005	mg/L		Molybdenum	BPQL	mg/L
0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L	0.05	Selenium	BPQL	mg/L
0.002	Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L	0.002	Thallium	BPQL	mg/L

7/19/2018	Parameter	Test	Result		8/2/2018	Parameter	Test	Result		8/23/2018	Parameter	Test	Result	
	Radium 228	Radium 228	BPQL	pCi/L		Radium 22	Radium 22	0.687	pCi/L		Radium 228	Radium 228	BPQL	pCi/L
		Uncertainty +/-	0.42	pCi/L			Uncertaint	0.382	pCi/L			Uncertainty +/-	0.402	pCi/L
	Radium 226	Radium 226	BPQL	pCi/L		Radium 22	Radium 22	0.708	pCi/L		Radium 226	Radium 226	0.221	pCi/L
		Uncertainty +/-	0.19	pCi/L			Uncertaint	0.358	pCi/L			Uncertainty +/-	0.23	pCi/L
	5 pCi/L					5 pCi/L					5 pCi/L			

9/12/2018

Attachment 2
MW05 Sample Data Summary

1/8/2019	Parameter	Result	
	Chloride	19.8	mg/L
	Flouride	0.16	mg/L
	Sulfate	139	mg/L
	TDS	723	mg/L
0.006	Antimony	BPQL	mg/L
0.01	Arsenic	BPQL	mg/L
2	Barium	0.159	mg/L
0.004	Beryllium	BPQL	mg/L
	Boron	0.221	mg/L
0.005	Cadmium	BPQL	mg/L
	Calcium	199	mg/L
0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L
	Lithium	BPQL	mg/L
0.002	Mercury	BPQL	µg/L
	Molybdenum	BPQL	mg/L
0.05	Selenium	BPQL	mg/L
0.002	Thallium	BPQL	mg/L

4/17/2019	Parameter	Result	
	Chloride	21.8	mg/L
	Flouride	0.17	mg/L
	Sulfate	149	mg/L
	TDS	844	mg/L
0.006	Antimony	BPQL	mg/L
0.01	Arsenic	BPQL	mg/L
2	Barium	0.146	mg/L
0.004	Beryllium	BPQL	mg/L
	Boron	0.212	mg/L
0.005	Cadmium	BPQL	mg/L
	Calcium	186	mg/L
0.1	Chromium	BPQL	mg/L
	Cobalt	BPQL	mg/L
	Lead	BPQL	mg/L
	Lithium	BPQL	mg/L
0.002	Mercury	BPQL	µg/L
	Molybdenum	BPQL	mg/L
0.05	Selenium	BPQL	mg/L
0.002	Thallium	BPQL	mg/L

Parameter	Test	Result	
Radium 228	Radium 228	1.62	pCi/L
	Uncertainty +/-	1.06	pCi/L
Radium 226	Radium 226	0.643	pCi/L
	Uncertainty +/-	0.329	pCi/L
5 pCi/L			

9/26/2018	Parameter	Test	Result	
	Radium 228	Radium 228	0.797	pCi/L
		Uncertainty +/-	0.388	pCi/L
	Radium 226	Radium 226	BPQL	pCi/L
		Uncertainty +/-	0.215	pCi/L
5 pCi/L				

1/8/2019	Parameter	Test	Result	
	Radium 228	Radium 228	BPQL	pCi/L
		Uncertainty +/-	0.427	pCi/L
	Radium 226	Radium 226	BPQL	pCi/L
		Uncertainty +/-	0.117	pCi/L
5 pCi/L				

4/17/2019	Parameter	Test	Result	
	Radium 22	Radium 22	BPQL	pCi/L
		Uncertaint	0.415	pCi/L
	Radium 22	Radium 22	BPQL	pCi/L
		Uncertaint	0.195	pCi/L
5 pCi/L				

Attachment 3

Multi-Purpose Well Completion and Plugging Report

P.O. Box 321 N. Harvey
Oklahoma City, Oklahoma 73101-0321
405-553-3000
www.oge.com

November 8, 2016

Rachel Hannigan
Land Protection Division
Department of Environmental Quality
P.O. Box 1677
Oklahoma City, OK 73101-1677

RE: Muskogee Generating Station Groundwater Monitoring Well System

Ms. Hannigan:

On September 26, 2016, OG&E Electric Services installed a groundwater monitoring system at the Muskogee Generating Station for the CCR surface impoundment located on site. This system has been installed in accordance with OAC 252:517-9-2.

Additionally, the monitoring wells were constructed in accordance with OAC 252:517-7-3. The Multi-purpose well completion & plugging report that have been stamped by a PE registered in the State of Oklahoma have been included in this submittal.

If you have any questions concerning this submittal please contact me by either my office (405-553-3349) or cell phone (405-708-9964).

Sincerely,

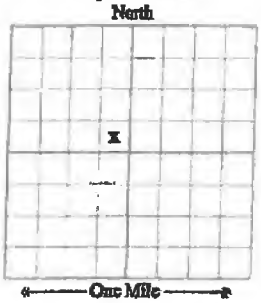
Tad Dow
Staff Envirochemist

Enclosures

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT

Oklahoma Water Resources Board
3800 North Classen Boulevard
Oklahoma City, OK 73118
Telephone (405) 530-8800

Legal Location
North



WELL ID NUMBER: 177060

Quarter: SE-SE-NW Section: 22 Township: 15N Range: 19E

Latitude: 35.7638394 Longitude: -95.2789297

Date collected(latitude and longitude), if different from date the well was drilled: 09/26/2016

Method latitude and longitude was collected: GPS - uncorrected data

County: Muskogee Variance Request No. (if applicable): n/a

WELL OWNER - NAME AND ADDRESS

Well Owner: OGE Energy Corp. Phone: _____

Address/City/State: 5501 Three Forks Rd. Fort Gibson OK Zip: 74434

Finding Location: 5501 Three Forks Rd. - approx 150 northeast of NEC of former evaporation pond

Well Name: MW-1 Water Rights #: ___

TYPE OF WORK: Monitoring Well USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed: 09/26/2016

Number of wells or borings represented by this log: 1

* (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

Hole Diameter: 8.25 inches to a depth of: 20 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line

Surface Pipe Material: __ Surface Pipe Diameter: __ inches Surface Pipe From: __ ft to __ ft

1) Well Casing Material: PVC Casing Diameter: 2 inches Casing From: 0 ft to: 9.2 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From: 9.2 ft to: 19.2 ft

FILTER PACK INFORMATION

Filter Pack Material: Medium Sand

Filter Pack Interval: From 7 ft to 20

WELL SEAL INFORMATION

Type of Surface Seal Cement Grout — Surface Seal Interval: From 0 ft to 1 ft

Type of Annular Seal Bentonite Granules/Chips — Annular Seal Interval: From 1 ft to 7 ft

Filter Pack Seal Material n/a — Filter Pack Seal Interval: From n/a ft to n/a ft

TYPE OF COMPLETION: Above Ground

HYDROLOGIC INFORMATION

Depth to water at time of drilling 11.1 ft — Estimated yield of well ___ gpm — First water zone ___ ft

LITHOLOGY DESCRIPTION

MATERIAL	ENCOUNTERED FROM (ft.)	ENCOUNTERED TO (ft.)	SATURATED
Lean Clay, lt brn w/ red to brn to red w/ lt brn, silty	0	20	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTION

Has this well been disinfected after completion of work? No

Are there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? Y

Distance of Well is 101 - 300 feet from possible source Type of possible source: Other

PLUGGING INFORMATION

Date Well or Boring Was Plugged n/a — Total Depth of well being plugged ___ ft.

Was the well contaminated or was it plugged as though it was contaminated? n/a

If the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/a

Was the grout tremied? n/a

Backfilled with n/a — Backfilled from ___ ft. to ___ ft.

Grouted with n/a — Grouted from ___ ft. to ___ ft.

Grouted with Cement — Grouted from ___ ft. to ___ ft.

Firm Name GSI ENGINEERING LLC — DPC No. DPC-0385

Operator Name AUDIE THORNBURG — OP No. OP-1847

Date 11/02/2016

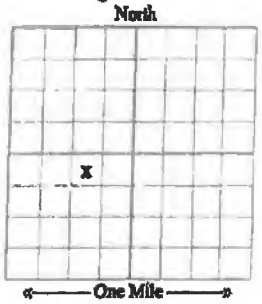
Comments: n/a

REGISTERED PROFESSIONAL ENGINEER DAVID A. EDWARDS 20308 OKLAHOMA

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT

Oklahoma Water Resources Board
3800 North Classen Boulevard
Oklahoma City, OK 73118
Telephone (405) 530-8800

Legal Location
North



WELL ID NUMBER: 177061

Quarters NW-NE-SW Section 22 Township 15N Range 19E

Latitude 35.76122256 Longitude -95.2804497

Date collected(latitude and longitude), if different from date the well was drilled: 09/26/2016

Method latitude and longitude was collected: GPS - uncorrected data

County Muskogee Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner OGE Energy Corp. Phone

Address/City/State 5501 Three Forks Rd. Fort Gibson, OK Zip 74434

Finding Location 5501 Three Forks Rd. - approx. 125 S, 275 W of SEC of former evaporation pond

Well Name MW-2 Water Rights #:

TYPE OF WORK: Monitoring Well USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 09/26/2016

Number of wells or borings represented by this log 1

* (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

Hole Diameter 8.25 inches to a depth of 25 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line

Surface Pipe Material: Surface Pipe Diameter inches Surface Pipe From ft to ft

1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 7 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 7 ft to 17 ft.

FILTER PACK INFORMATION

Filter Pack Material: Medium Sand

Filter Pack Interval: From 6 ft to 17

WELL SEAL INFORMATION

Type of Surface Seal Cement Grout — Surface Seal Interval: From 0 ft to 1 ft

Type of Annular Seal Bentonite Granules/Chips — Annular Seal Interval: From 1 ft to 6 ft

Filter Pack Seal Material n/a — Filter Pack Seal Interval: From n/a ft to n/a ft

TYPE OF COMPLETION: Above Ground

HYDROLOGIC INFORMATION

Depth to water at time of drilling 6.1 ft — Estimated yield of well ___ gpm — First water zone ___ ft

LITHOLOGY DESCRIPTION

MATERIAL	ENCOUNTERED FROM (ft.)	ENCOUNTERED TO (ft.)	SATURATED
Lean Clay, brn to dk brn, w/ sand at 10-14	0	16	N
Clayey Sand, lt brn	16	20	N
Lean Clay, brn	20	25	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTION

Has this well been disinfected after completion of work? No

Are than any potential sources of pollution or wastewater lagoons within 300 ft. of the well? Y

Distance of Well is 101 - 300 feet from possible source. Type of possible source: Other

PLUGGING INFORMATION

Date Well or Boring Was Plugged n/a — Total Depth of well being plugged ___ ft.

Was the well contaminated or was it plugged as though it was contaminated? n/a

If the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/a

Was the grout tremied? n/a

Backfilled with n/a — Backfilled from ___ ft. to ___ ft.

Grouted with n/a — Grouted from ___ ft. to ___ ft.

Grouted with Cement — Grouted from ___ ft. to ___ ft.

Firm Name GSI ENGINEERING LLC — D/PC No. DPC-0385

Operator Name AUDIE THORNBURG — OP No. OP-1847

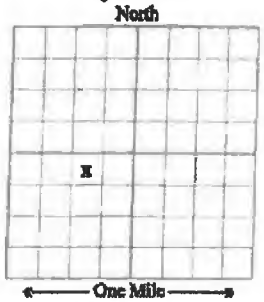
Date 11/02/2016

Comments: Water level rose higher than expected; screened interval moved up from 15-25 to 7-17. Borehole filled with sand and native material from 17 to TD (25).

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT

Oklahoma Water Resources Board
3800 North Classen Boulevard
Oklahoma City, OK 73118
Telephone (405) 530-8800

Legal Location
North



WELL ID NUMBER: 177062

Quarters NW-NE-SW Section 22 Township 15N Range 19E

Latitude 35.76123 Longitude -95.2823442

Date collected(latitude and longitude), if different from date the well was drilled: 09/27/2016

Method latitude and longitude was collected: GPS - uncorrected data

County Muskogee Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner OGE Energy Corp. Phone _____

Address/City/State 5501 Three Forks Rd. Fort Gibson OK Zip 74434

Finding Location 5501 Three Forks Rd. - approx. 150 S, 25 E of SWC of former evaporation pond

Well Name MW-3 Water Rights #: ___

TYPE OF WORK: Monitoring Well USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 09/27/2016

Number of wells or borings represented by this log 1

* (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

Hole Diameter 8.25 inches to a depth of 20 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: ___ Surface Pipe Diameter ___ inches Surface Pipe From ___ ft to ___ ft

1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 10 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 10 ft to 20 ft

FILTER PACK INFORMATION

Filter Pack Material: Medium Sand

Filter Pack Interval: From 8 ft to 20

WELL SEAL INFORMATION

Type of Surface Seal Cement Grout — Surface Seal Interval: From 0 ft to 1 ft

Type of Annular Seal Bentonite Granules/Chips — Annular Seal Interval: From 1 ft to 8 ft

Filter Pack Seal Material n/a — Filter Pack Seal Interval: From n/a ft to n/a ft

TYPE OF COMPLETION: Above Ground

HYDROLOGIC INFORMATION

Depth to water at time of drilling 11.9 ft — Estimated yield of well ___ gpm — First water zone ___ ft

LITHOLOGY DESCRIPTION

MATERIAL	ENCOUNTERED FROM (ft.)	TO (ft.)	SATURATED
Lean Clay, lt brn to dk brn, w/ sand below 4	0	8	N
Clayey Sand, lt brn	8	20	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTION

Has this well been disinfected after completion of work? No

Are there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? Y

Distance of Well is 101 - 300 feet from possible source. Type of possible source: Other

PLUGGING INFORMATION

Date Well or Boring Was Plugged n/a — Total Depth of well being plugged ___ ft.

Was the well contaminated or was it plugged as though it was contaminated? n/a

If the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/a

Was the grout tremied? n/a

Backfilled with n/a — Backfilled from ___ ft. to ___ ft.

Grouted with n/a — Grouted from ___ ft. to ___ ft.

Grouted with Cement — Grouted from ___ ft. to ___ ft.

Firm Name GSI ENGINEERING LLC — DPC No. DPC-0385

Operator Name AUDIE THORNBURG — OP No. OP-1847

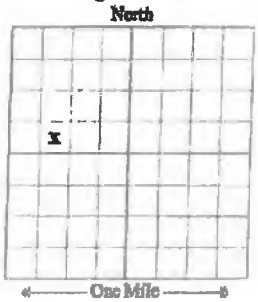
Date 11/02/2016

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT

Oklahoma Water Resources Board
3800 North Classen Boulevard
Oklahoma City, OK 73118
Telephone (405) 530-8800

Legal Location
North



WELL ID NUMBER: 177063

Quarters SE-SW-NW Section 22 Township 15N Range 19E

Latitude 35.7622439 Longitude -95.283205

Date collected(latitude and longitude), if different from date the well was drilled: 09/27/2016

Method latitude and longitude was collected: GPS - uncorrected data

County Muskogee Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner OGE Energy Corp. Phone _____

Address/City/State 5501 Three Forks Rd. Fort Gibson OK Zip 74434

Finding Location 5501 Three Forks Rd. - approx. 200 N. 225 W of of SWC of former evaporation pond

Well Name MW-4 Water Rights #:

TYPE OF WORK: Monitoring Well USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 09/27/2016

Number of wells or borings represented by this log 1

* (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

Hole Diameter 8.25 inches to a depth of 20 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: __ Surface Pipe Diameter __ inches Surface Pipe From __ ft to __ ft

1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 10 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 10 ft to 20 ft.

FILTER PACK INFORMATION

Filter Pack Material: Medium Sand

Filter Pack Interval: From 8 ft to 20

WELL SEAL INFORMATION

Type of Surface Seal Cement Grout — Surface Seal Interval: From 0 ft to 1 ft

Type of Annular Seal Bentonite Granular/Chips — Annular Seal Interval: From 1 ft to 8 ft

Filter Pack Seal Material n/a — Filter Pack Seal Interval: From n/a ft to n/a ft

TYPE OF COMPLETION: Above Ground

HYDROLOGIC INFORMATION

Depth to water at time of drilling 11.9 ft — Estimated yield of well ___ gpm — First water zone ___ ft

LITHOLOGY DESCRIPTION

MATERIAL	ENCOUNTERED FROM (ft.)	ENCOUNTERED TO (ft.)	SATURATED
Lean Clay, lt brn to brn. w/ sand below 4	0	8	N
Fat Clay, dk brn	8	12	N
Lean Clay, brn	12	20	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTION

Has this well been disinfected after completion of work? No

Are there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? Y

Distance of Well is 101 - 300 feet from possible source. Type of possible source: Other

PLUGGING INFORMATION

Date Well or Boring Was Plugged n/a — Total Depth of well being plugged ___ ft.

Was the well contaminated or was it plugged as though it was contaminated? n/a

If the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/a

Was the grout tremied? n/a

Backfilled with n/a — Backfilled from ___ ft. to ___ ft.

Grouted with n/a — Grouted from ___ ft. to ___ ft.

Grouted with Cement — Grouted from ___ ft. to ___ ft

Firm Name GSI ENGINEERING LLC — D/PC No. DPC-0385

Operator Name AUDIE THORNBURG — OP No. OP-1847

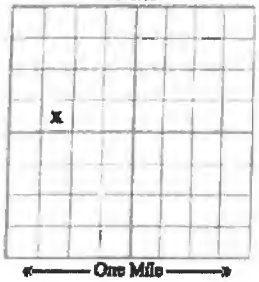
Date 11/02/2016

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT

Oklahoma Water Resources Board
3800 North Classen Boulevard
Oklahoma City, OK 73118
Telephone (405) 530-8800

Legal Location
North



Each square is 10-acres

WELL ID NUMBER: 177064

Quarters SE-SW-NW Section 22 Township 15N Range 19E

Latitude 35.7629086 Longitude -95.2839653

Date collected(latitude and longitude), if different from date the well was drilled: 09/27/2016

Method latitude and longitude was collected: GPS - uncorrected data

County Muskogee Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner OGE Energy Corp. Phone _____

Address/City/State 5501 Three Forks Rd. Fort Gibson OK Zip 74434

Finding Location 5501 Three Forks Rd. - approx. 450 N, 475 W of SWC of former evaporation pond

Well Name MW-5 Water Rights #: ___

TYPE OF WORK: Monitoring Well USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 09/27/2016

Number of wells or borings represented by this log 1

* (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

Hole Diameter 8.25 inches to a depth of 20 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: __ Surface Pipe Diameter ___ inches Surface Pipe From ___ ft to ___ ft

1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 10 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 10 ft to 20 ft.

FILTER PACK INFORMATION

Filter Pack Material: Medium Sand

Filter Pack Interval: From 7.5 ft to 20

WELL SEAL INFORMATION

Type of Surface Seal Cement Grout — Surface Seal Interval: From 0 ft to 1 ft

Type of Annular Seal Bentonite Granules/Chips — Annular Seal Interval: From 1 ft to 7.5 ft

Filter Pack Seal Material n/a — Filter Pack Seal Interval: From n/a ft to n/a ft

TYPE OF COMPLETION: Above Ground

HYDROLOGIC INFORMATION

Depth to water at time of drilling 12.4 ft — Estimated yield of well ___ gpm — First water zone ___ ft

LITHOLOGY DESCRIPTION

MATERIAL	ENCOUNTERED FROM (ft.)	ENCOUNTERED TO (ft.)	SATURATED
Lean Clay, lt brn to brn, w/ sand below 4	0	12	N
Clayey Sand, brn	12	16	N
Lean Clay, brn	16	20	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTION

Has this well been disinfected after completion of work? No

Are there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? Y

Distance of Well is 301 - 1320 feet from possible source. Type of possible source: Other

PLUGGING INFORMATION

Date Well or Boring Was Plugged n/a — Total Depth of well being plugged ___ ft.

Was the well contaminated or was it plugged as though it was contaminated? n/a

If the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/a

Was the grout tremied? n/a

Backfilled with n/a — Backfilled from ___ ft. to ___ ft.

Grouted with n/a — Grouted from ___ ft. to ___ ft.

Grouted with Cement — Grouted from ___ ft. to ___ ft.

Firm Name GSI ENGINEERING LLC — D/PC No. DPC-0385

Operator Name AUDIE THORNBURG — OP No. OP-1847

Date 11/02/2016

Comments: n/a